

Service Manual

Radio

RF-2900LBS

FM-AM 6-Band Portable Radio



■ SPECIFICATIONS

Frequency Range:	FM	87.5~108 MHz	Power Output:	3W DC Maximum
	LW	150~410 kHz (2000~731m)	Power Source:	AC 110~125V/220~240V 50~60 Hz or 9V (Six "D" Size Flashlight Batteries) (National UM-1 or equivalent)
	MW	525~1610 kHz (571~186m)	Power Consumption:	11W (AC Only)
Intermediate Frequency:	SW ₁	3.2~8 MHz (93.8~37.5m)	Speaker:	10 cm (4") PM Dynamic Speaker
	SW ₂	8~16 MHz (37.5~18.7m)	Dimensions:	381(Wide) x 246(High) x 120(Deep)mm (15" x 9 ¹¹ / ₁₆ " x 4 ³ / ₄ ")
	SW ₃	16~30 MHz (18.7~10m)	Weight:	3.6 kg. (7 lb. 15 oz.) without batteries
	FM	10.7 MHz	Impedance:	Speaker8Ω Earphone Jack8Ω Multiplex Out Jack10kΩ (40mV) FM Antenna Terminal75Ω Phono Jack500kΩ (50mV) Recording Out Jack.....80kΩ (100mV)
	AM (LW, MW & SW)	455 kHz		
Sensitivity:	SW	1st IF 2 MHz		
		2nd IF 455 kHz		
	FM	2.5μV (S/N 26 dB), 2μV (3 dB down limiter sens.)		
	LW	70μV/m (S/N 6 dB), 600μV/m (S/N 26 dB)		
	MW	30μV/m (S/N 6 dB), 400μV/m (S/N 26 dB)		
	SW ₁	1.8μV (S/N 6 dB), 19μV (S/N 26 dB)		
	SW ₂	0.8μV (S/N 6 dB), 9μV (S/N 26 dB)		
	SW ₃	1.2μV (S/N 6 dB), 13μV (S/N 26 dB)		

Specifications are subject to change without notice.

LOCATION OF CONTROLS AND COMPONENTS

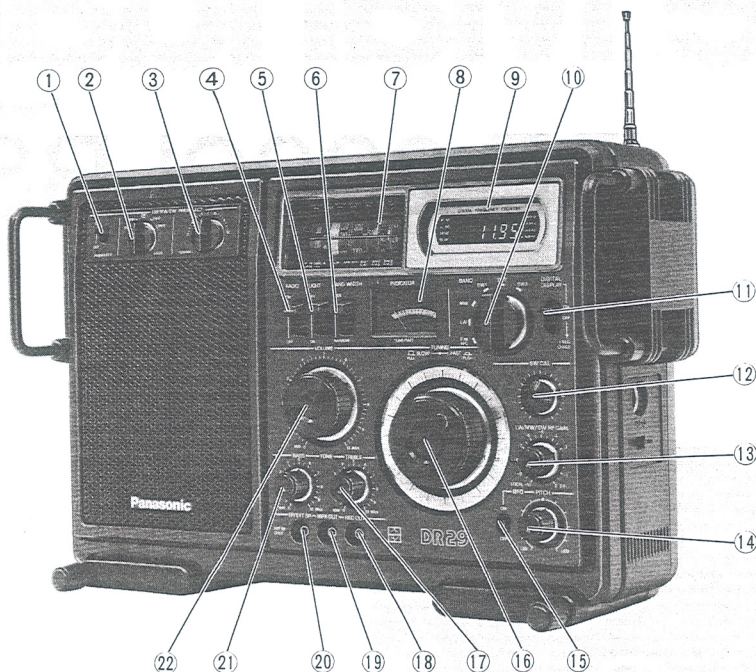


Fig. 1

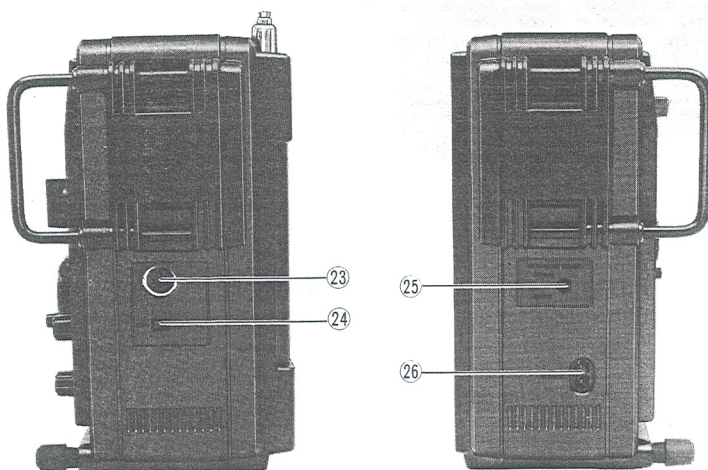


Fig. 2

Fig. 3

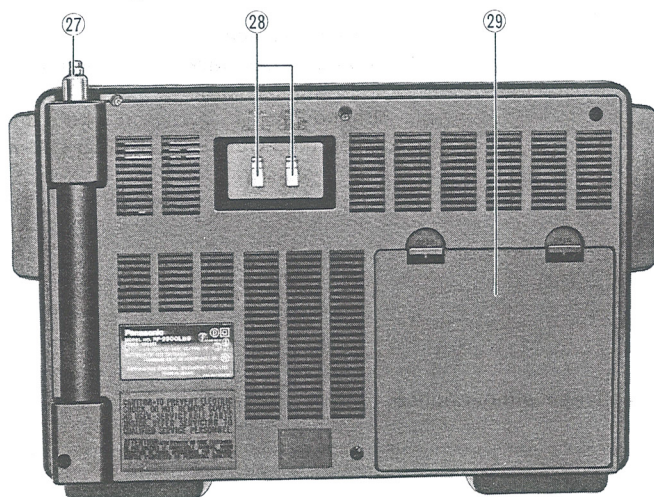


Fig. 4

■ CONTROLS

- ① Preset Selector Switch
- ② Band Selector for Preset Selector
- ③ Preset Selector Tuning Control
- ④ Radio On/Off Switch
- ⑤ Light Switch
- ⑥ Bandwidth Switch
- ⑦ Tuning Dial
- ⑧ Tuning/Battery Indicator
- ⑨ Digital Frequency Counter
- ⑩ Band Selector
- ⑪ Digital Display Switch
- ⑫ SW Calibrator
- ⑬ RF Gain Control
- ⑭ BFO Pitch Control
- ⑮ BFO Switch
- ⑯ Tuning Control
- ⑰ Treble Control
- ⑱ Recording Output Jack
- ⑲ Multiplex Output Jack
- ⑳ Earphone/External Speaker Jack
- ㉑ Bass Control
- ㉒ Volume Control
- ㉓ DIN Jack
- ㉔ Radio/Phono Switch
- ㉕ AC Voltage Selector
- ㉖ AC Input Jack
- ㉗ Telescopic Antenna
- ㉘ External Antenna Terminals
- ㉙ Battery Compartment

DISASSEMBLY INSTRUCTIONS

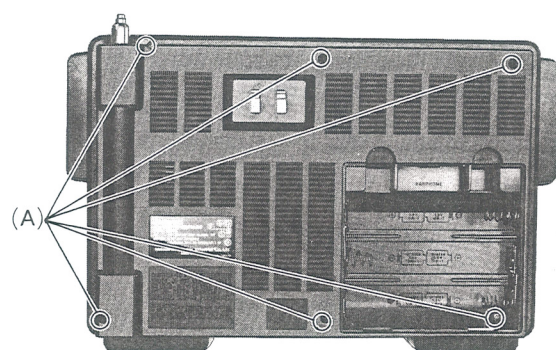


Fig. 5

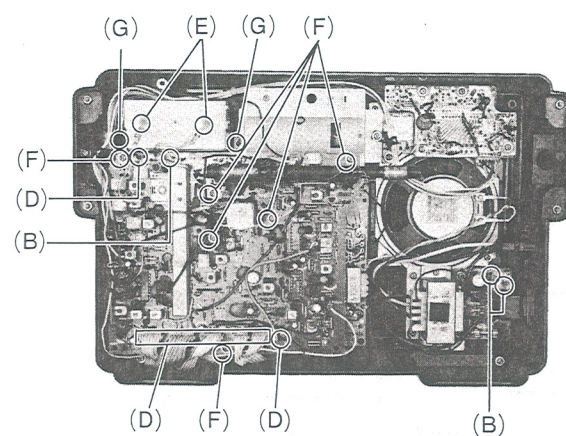


Fig. 6

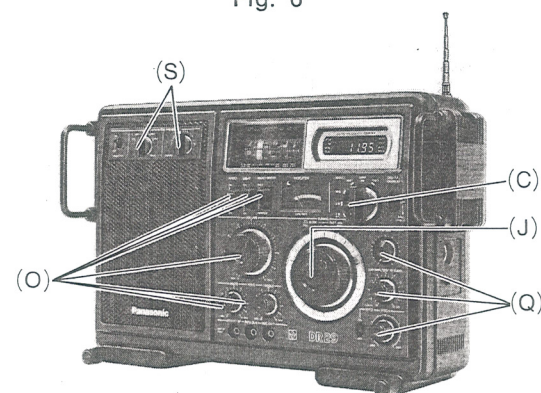


Fig. 7

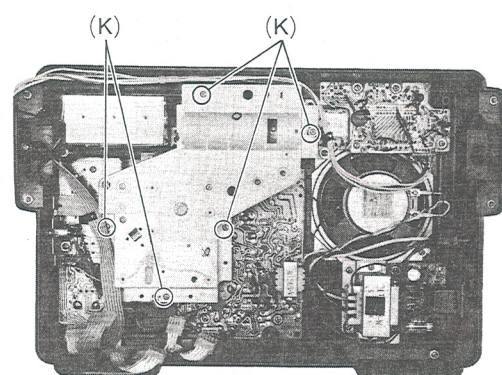


Fig. 8

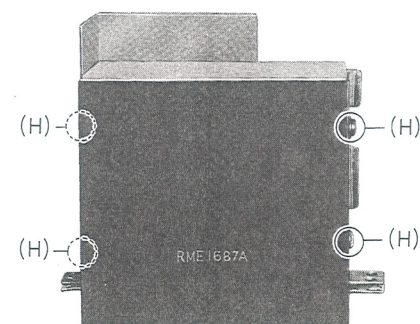


Fig. 9

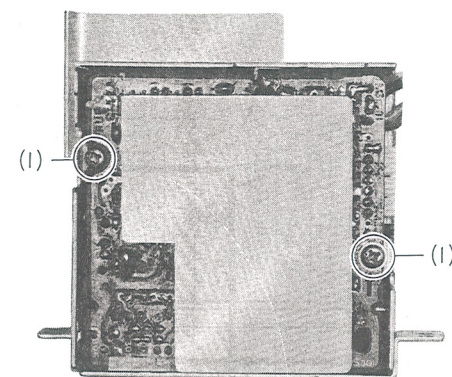


Fig. 10

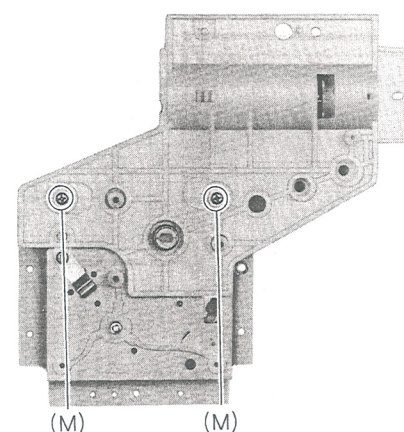


Fig. 11

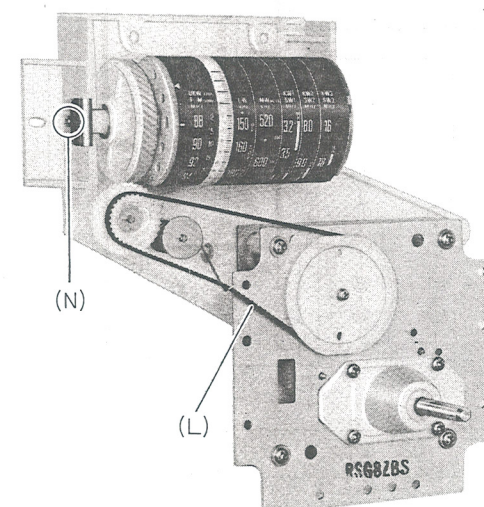


Fig. 12

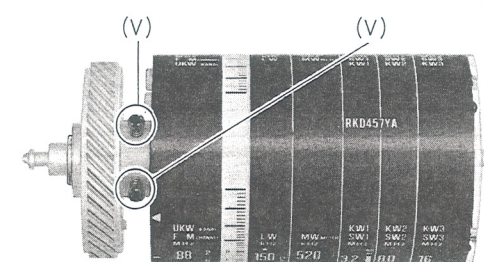


Fig. 13

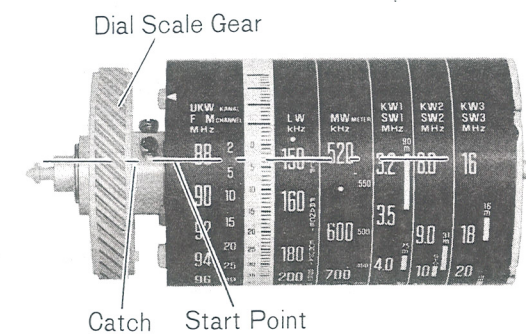


Fig. 14

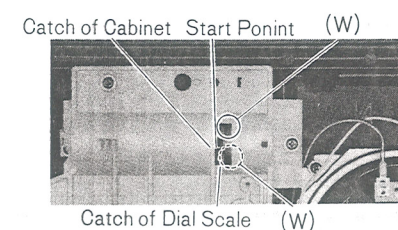


Fig. 15

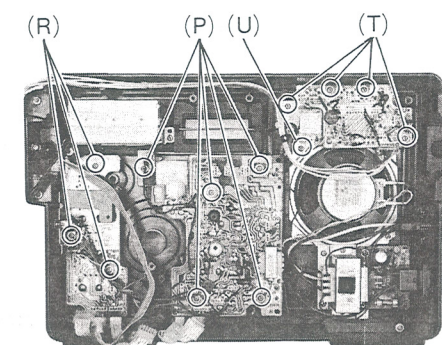


Fig. 16

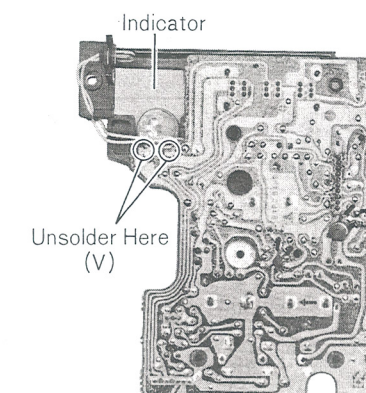


Fig. 17

Procedure	To remove—	Remove—	Shown in fig—
1	Cabinet Cover Ass'y	Battery Cover	
2		Screw (3 x 25)(A) x 6	5
3		Socket.....(B) x 3	6
4	IF, RF Circuit Board * 1, 2	Band Knob.....(C) x 1	7
5		Socket.....(D) x 7	6
6		Screw (3 x 6)(E) x 2	6
7		Screw (3 x 10)(F) x 6	6
8	Frequency Counter Block	Screw (3 x 10)(G) x 2	6
9	Frequency Counter	Screw (3 x 6)(H) x 4	9
10	Circuit Board	Screw (3 x 6)(I) x 2	10
11	Dial Scale Chassis	Tuning Knob(J) x 1	7
12		Screw (3 x 10)(K) x 5	8
13	Dial Mechanism * 3, 4, 5	Belt(L) x 1	12
14		Screw (3 x 10)(M) x 2	11
15	Dial Scale * 6, 7, 8, 9, 10	Screw (23 x 6)(N) x 1	12
16	AF Circuit Board	Knob(O) x 6	7
17		Screw (3 x 10)(P) x 5	16
18	Control Circuit Board	Knob(Q) x 3	7
19		Screw (3 x 10)(R) x 3	16

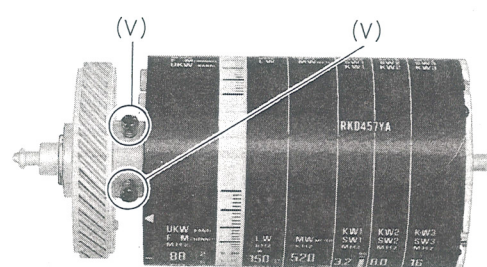


Fig. 13

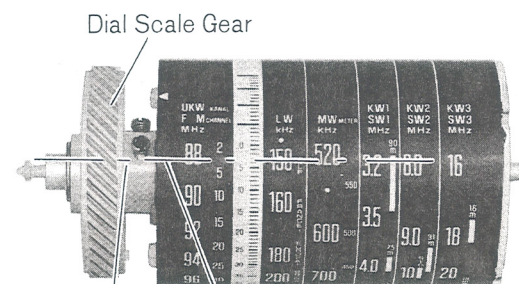


Fig. 14

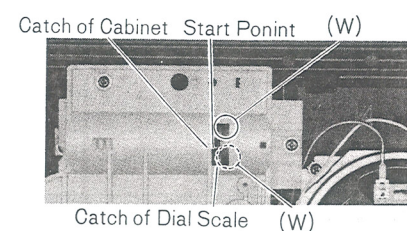


Fig. 15

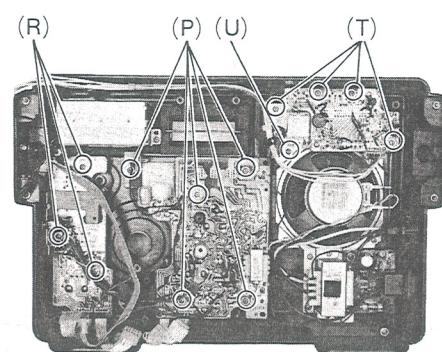


Fig. 16

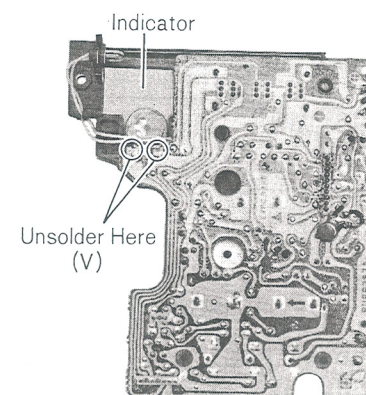


Fig. 17

Procedure	To remove—	Remove—	Shown in fig—
1	Cabinet Cover Ass'y	Battery Cover	
2		Screw (3 × 25)(A) × 6	5
3		Socket.....(B) × 3	6
4	IF, RF Circuit Board * 1, 2	Band Knob.....(C) × 1	7
5		Socket.....(D) × 7	6
6		Screw (3 × 6)(E) × 2	6
7	Frequency Counter Block	Screw (3 × 10)(F) × 6	6
8		Screw (3 × 10)(G) × 2	6
9		Screw (3 × 6)(H) × 4	9
10	Frequency Counter Circuit Board	Screw (3 × 6)(I) × 2	10
11		Tuning Knob(J) × 1	7
12	Dial Scale Chassis	Screw (3 × 10)(K) × 5	8
13		Belt(L) × 1	12
14	Dial Mechanism * 3, 4, 5	Screw (3 × 10)(M) × 2	11
15		Screw (23 × 6)(N) × 1	12
16	AF Circuit Board	Knob(O) × 6	7
17		Screw (3 × 10)(P) × 5	16
18	Control Circuit Board	Knob(Q) × 3	7
19		Screw (3 × 10)(R) × 3	16

Procedure	To remove—	Remove—	Shown in fig—
20	Preselect Circuit Board	Knob(S) × 2	7
21		Screw (3 × 10)(T) × 4	16
22		Screw (3 × 16)(U) × 1	16
23	Indicator	Unsolder(V) × 2	17

- * 1. Turn the tuning knob fully counter-clockwise.
- * 2. Turn the tuning capacitor shaft fully counter-clockwise.
- * 3. Turn the tuning shaft fully counter-clockwise.
- * 4. Set the dial scale at the position, as shown in fig. 12.
- * 5. Refer to dial scale removal instruction.
- * 6. Loosen the two (2) screws (V) for the dial scale gear, as shown in fig. 13.
- * 7. Set the catch of dial scale gear to the start point of dial scale, as shown in fig. 14.
- * 8. Turn the tuning shaft fully counter-clockwise.
- * 9. After mounting the PC board (IF, RF circuit), turn the dial scale by pushing the catch of dial scale and set the start point of dial scale to the catch of cabinet, as shown in fig. 15.
- * 10. Tighten the two (2) screws (W) for the dial scale gear, as shown in fig. 15.

BLOCK DIAGRAM

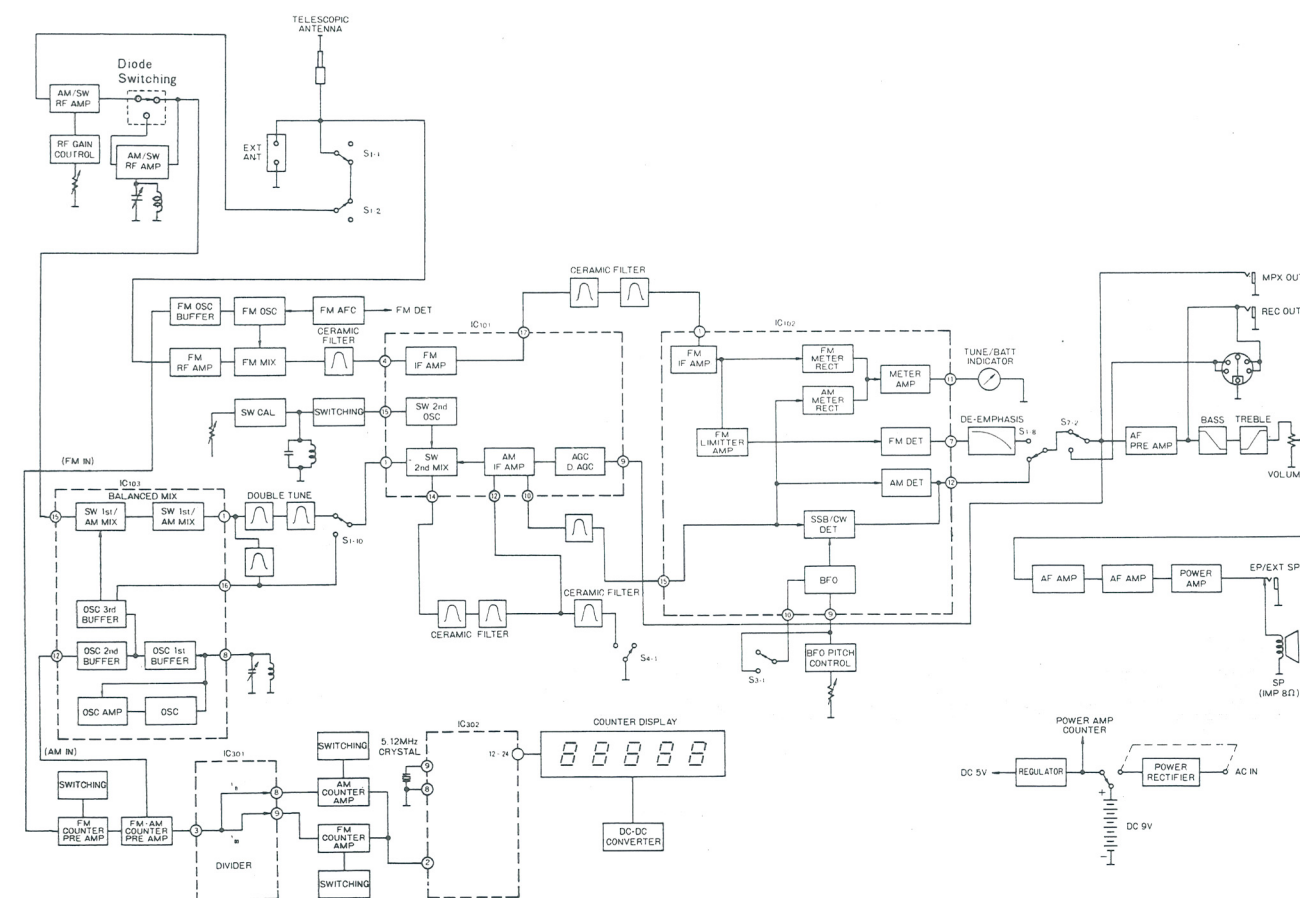


Fig. 18

Procedure	To remove—	Remove—	Shown in fig—
20	Preselect Circuit Board	Knob(S) × 2	7
21		Screw (3 × 10)(T) × 4	16
22		Screw (3 × 16)(U) × 1	16
23	Indicator	Unsolder(V) × 2	17

- * 1. Turn the tuning knob fully counter-clockwise.
- * 2. Turn the tuning capacitor shaft fully counter-clockwise.
- * 3. Turn the tuning shaft fully counter-clockwise.
- * 4. Set the dial scale at the position, as shown in fig. 12.
- * 5. Refer to dial scale removal instruction.
- * 6. Loosen the two (2) screws (V) for the dial scale gear, as shown in fig. 13.
- * 7. Set the catch of dial scale gear to the start point of dial scale, as shown in fig. 14.
- * 8. Turn the tuning shaft fully counter-clockwise.
- * 9. After mounting the PC board (IF, RF circuit), turn the dial scale by pushing the catch of dial scale and set the start point of dial scale to the catch of cabinet, as shown in fig. 15.
- * 10. Tighten the two (2) screws (W) for the dial scale gear, as shown in fig. 15.

BLOCK DIAGRAM

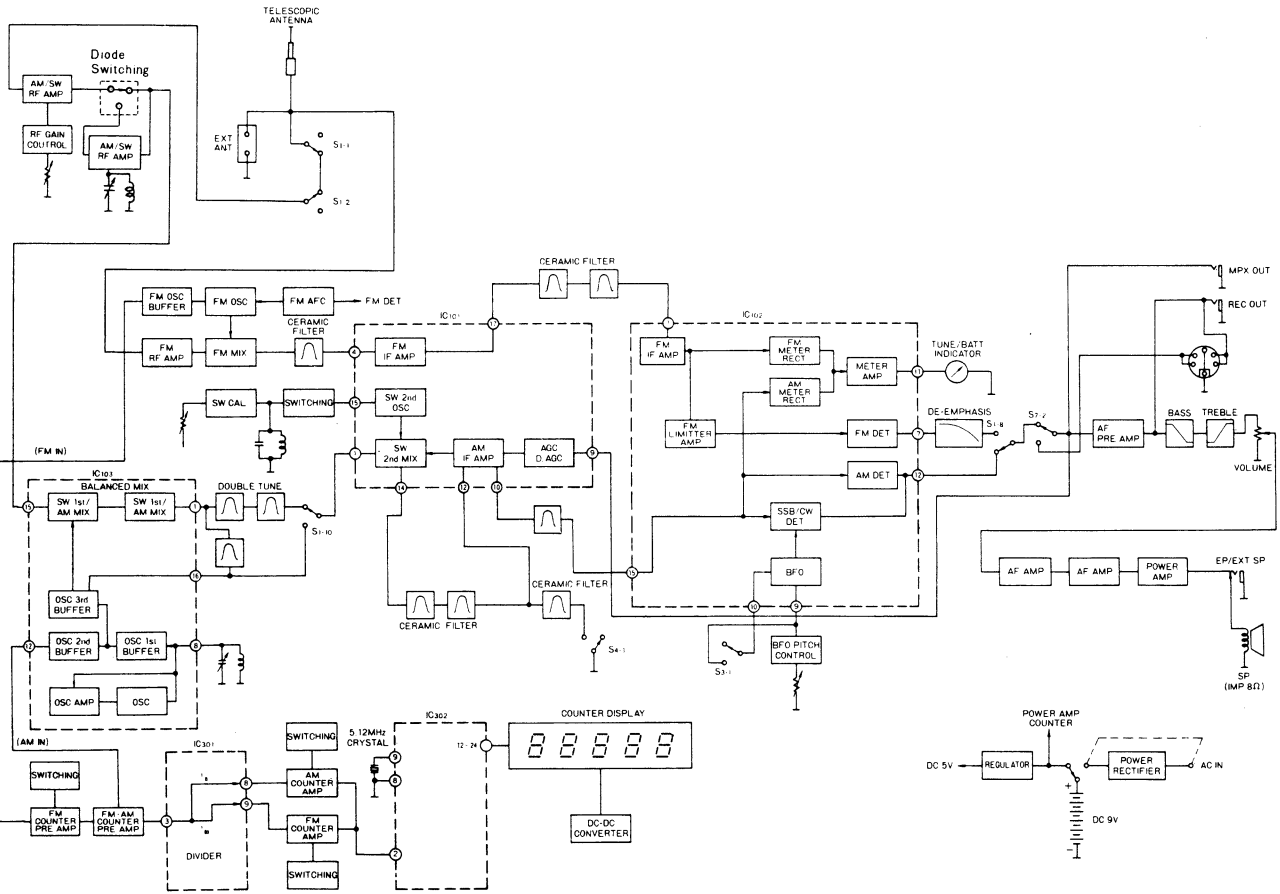
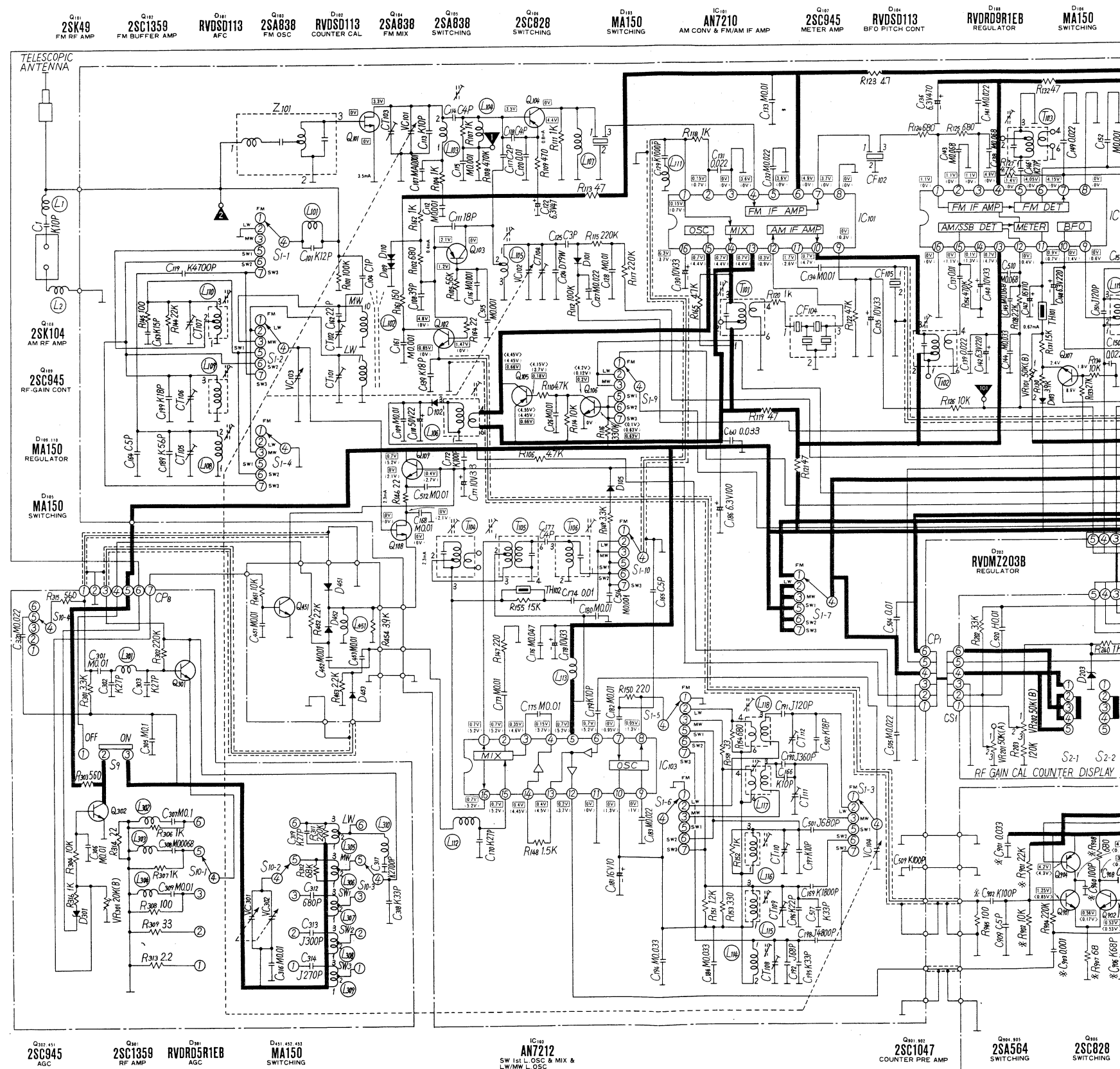
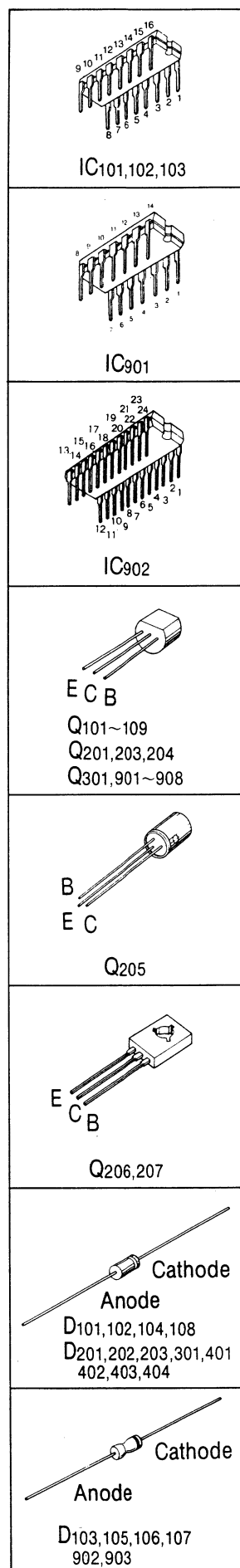
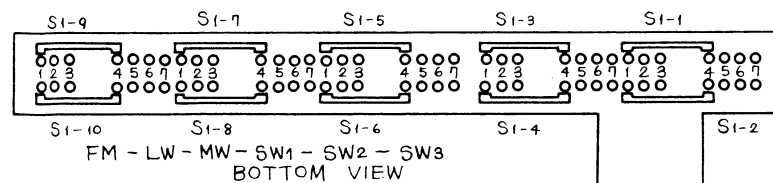
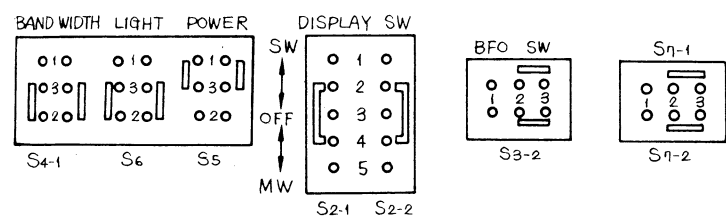
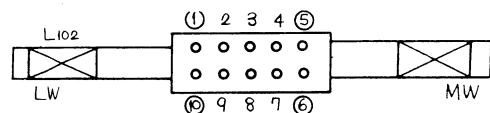
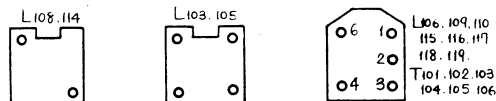


Fig. 18

SCHEMATIC DIAGRAM-MODEL

Notes:

1. S₁₋₁~S₁₋₁₀: Band switch in "FM" position.
 2. S₂₋₁, S₂₋₂: Digital display switch in "OFF" position.
 3. S₃₋₁, S₃₋₂: BFO switch in "OFF" position.
 4. S₄₋₁: Band width switch in "NARROW" position.
 5. S₅: Radio ON/OFF switch in "OFF" position.
 6. S₆: Light switch in "OFF" position.
 7. S₇: Phono/Radio switch in "Radio" position.
 8. S₈: Voltage selector switch.
 9. S₉: Preselector switch in "ON" position.
 10. S₁₀₋₁~S₁₀₋₃: Preselector Band switch in "MW" position.
 11. DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
- ☐FM position ()AM position
☐SW position
12. * markchip resistor and capacitor.
 13. Battery current. No signal36 mA
Maximum output600 mA
 14. indicates that only parts specified by the manufacturer be used for safety.
 15. VR₁₀₁ ...Meter Control, VR₂₀₁ ...RF Gain Control,
VR₂₀₂ ...SW Cal Control, VR₂₀₃ ...BFO Pitch Control,
VR₂₀₄ ...Base Control, VR₂₀₅ ...Treble Control
VR₂₀₆ ...Volume Control, VR₃₀₁ ...D.AGC Control



The schematic diagram illustrates the internal circuitry of a portable FM stereo receiver. It features several key sections:

- Power Supply:** Includes a transformer (T1) connected to a 110V AC source, followed by a bridge rectifier (BR1), filter capacitors (C1, C2), and a voltage regulator (RV0M2203B).
- RF Section:** Starts with an antenna input through a switch (S1-1), passing through an RF amplifier (SK104) and mixer (IC101) stages.
- IF Section:** Consists of intermediate frequency amplifier stages (IC102, IC103) and a detector (IC104) with associated tuning indicators.
- Stereo Decoder & Processing:** Utilizes specialized ICs (AN7212, 2SC1047, 2SA564, 2SC828) to decode stereo signals and process them for the speakers.
- Control & Display:** Includes a digital frequency display (DS901) driven by a divider (RV10610P-1). Control switches manage functions like narrow/wide band selection, radio/dial light, and BFO pitch.
- Audio Output:** Features a speaker driver stage (IC902) connected to a speaker (SP1).

The diagram is densely packed with component values, pin connections, and reference designators, providing a comprehensive guide for assembly or repair.

RF-2900LBS DEUTSCH

TECHNISCHE DATEN

Frequenzbereich:	UKW 87,5–108 MHz	Tonausgangsleistung:	max. 3W
	LW 150–410 kHz (2000–731 m)	Stromversorgung:	Wechselstrom 110–125 V/220–240 V
Zwischenfrequenz:	MW 525–1610 kHz (571–186 m)	Leistungsaufnahme:	50–60 Hz oder Gleichstrom 9 V
	KW1 3,2–8 MHz (93,8–37,5 m)		(sechs Trockenbatterien "D")
	KW2 8–16 MHz (37,5–18,7 m)		(National UM-1 o. ä.)
	KW3 16–30 MHz (18,7–10 m)		11 W (bei Netzbetrieb)
Empfindlichkeit:	FM 10,7 MHz	Lautsprecher:	dynamischer PM-Lautsprecher, ø10 cm
	AM (LW, MW, KW) 455 kHz	Abmessungen	(B x H x T): 381 x 246 x 120 mm
	UKW 2,5µV (Rauschabstand 26 dB), 2µV (Ansprechempfindlichkeit des Begrenzers 3 dB geringer)	Gewicht	(ohne Batterien): 2,3 kg
	LW 70µV/m (Rauschabstand 6 dB), 600µV/m (Rauschabstand 26 dB)	Impedanzen:	Lautsprecher 8Ω
	MW 30µV/m (Rauschabstand 6 dB), 400µV/m (Rauschabstand 26 dB)		Ohrhörerbuchse 8Ω
	KW1 1,8µV (Rauschabstand 6 dB), 19µV (Rauschabstand 26 dB)		Multiplex-Ausgangsbuchse 10 kΩ/40 mV
	KW2 0,8µV (Rauschabstand 6 dB), 9µV (Rauschabstand 26 dB)		UKW-Antennenanschluß 75Ω
	KW3 1,2µV (Rauschabstand 6 dB), 13µV (Rauschabstand 26 dB)		TA-Buchse 500 kΩ/50 mV
			Aufnahmebuchse 80 kΩ/100 mV

Änderungen vorbehalten.

ABGLEICH

VORGANGSWEISE BEIM ABGLEICH

BITTE DIESEN ABSCHNITT VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN.			
1. Den Lautstärkeregler in die Maximalposition stellen.	auf "AUS/Schmalband" stellen, bei den anderen Abgleichen auf "EIN/Breitband".		
2. Das Gerät einschalten (Netzschalter auf "EIN").	9. Den Tonhöhenregler in die Mittelposition stellen.		
3. Den Baßregler und den Höhenregler in die Maximalposition stellen.	10. Beim BFO-Abgleich den BFO-Schalter auf "EIN" stellen, bei den anderen Abgleichen auf "AUS".		
4. Den Wellenbereichsschalter auf LW, MW, SW1, SW2, SW3, oder FM stellen.	11. Den KW-Eichregler in die Mittelposition stellen.		
5. Die Digitalanzeige ausschalten (Anzeigenschalter auf "AUS").	12. Eine Stromquelle von 9 V Gleichstrom anlegen.		
6. Eine große AM/SW-HF-Verstärkung einstellen.	13. Der Signalgeneratorausgang sollte nicht größer sein, als für eine Ausgangsanzeige unbedingt notwendig ist.		
7. Die Beleuchtung ausschalten (Lichtschalter auf "AUS").			
8. Beim AM-ZF-, BFO- und FM-Abgleich den UKW-Scharfabstimmung/Bandbreitenschalter			

AM-ABGLEICH (LW, MW UND KW)

WELLENBAND	SIGNALGENERATOR oder WOBBELGENERATOR		STELLUNG DES ABSTIMMREGLERS	MESSGERÄT (RÖHREN-VOLTMETER oder OSZILLOSKOP)	ABGLEICH	BEMERKUNGEN
	ANSCHLÜSSE	FREQUENZ				
AM-ZF-ABGLEICH						
(1) AM	Aus einem Draht einige Schleifenwindungen bilden und das Signal in die Empfängerschleife abstrahlen.	455 kHz 30% mod. (Modulationsfrequenz 400 Hz)	Der Abstimmpunkt, wo keine Interferenz auftritt.	Ausgangsleistungsmesser parallel zur Lautsprecher-Schwingspule	T101 (1. AM-ZF-Abgleich) T102 (2. AM-ZF-Abgleich) T104 (3. AM-ZF-Abgleich)	Die maximale Ausgangsleistung einstellen.

WELLENBAND	SIGNALGENERATOR oder WOBBELGENERATOR		STELLUNG DES ABSTIMMREGLERS	MESSGERÄT (RÖHREN-VOLTMETER oder OSZILLOSKOP)	ABGLEICH	BEMERKUNGEN	
	ANSCHLÜSSE	FREQUENZ					
LW-HF-ABGLEICH							
(2)	LW	Aus einem Draht einige Schleifenwindungen bilden und das Signal in die Empfängerschleife abstrahlen.	150 kHz	150 kHz (Siehe Abb. 23.)	Ausgangsleistungsmesser parallel zur Lautsprecher-Schwingspule	L118 (LW-Oszillators-pule) (* 1) L102 (LW-Antennenspule)	Die maximale Ausgangsleistung einstellen. L102 durch Verschieben auf dem Ferritkern abgleichen.
(3)	LW	"	400 kHz	400 kHz (Siehe Abb. 24.)	"	CT112 (LW-Oszillatortrimmer) CT101 (LW-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (2) und (3) wiederholen.
MW-HF-ABGLEICH							
(4)	MW	"	550 kHz	550 kHz (Siehe Abb. 25.)	Ausgangsleistungsmesser parallel zur Lautsprecher-schwingspule	L117 (AM-Oszillators-pule) (* 1) L102 (AM-Antennenspule)	Die maximale Ausgangsleistung einstellen. L102 durch Verschieben auf dem Ferritkern abgleichen.
(5)	MW	"	1500 kHz	1500 kHz (Siehe Abb. 26.)	"	CT111 (AM-Oszillatortrimmer) CT102 (AM-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (4) und (5) wiederholen.
(* 1) Nach beendetem Abgleich ist der Antennenspulenkörper mit Wachs zu befestigen.							
KW: 1. ZF- UND 2. OSZILLATORABGLEICH							
(6)	KW1	Über einen Keramik-kondensator (10 pF) an die AUSSEN-ANTENNEN Buchse ("EXT ANT") anschließen. Den negativen Ausgang erden.	2 MHz	Der Abstimm-punkt, wo keine Interferenz auftritt.	"	L106 (2. Oszillators-pule) T105 (1. KW-ZF-Abgleich) T106 (1. KW-ZF-Abgleich)	Die maximale Ausgangsleistung einstellen.
KW1-HF-ABGLEICH							
(7)	KW1	An die AUSSENANTENNEN-Buchse ("EXT ANT") anschließen.	3,5 MHz	3,5 MHz (Siehe Abb. 27.)	Ausgangsleistungsmesser parallel zur Lautsprecher-Schwingspule	L116 (KW1-Oszillators-pule) L110 (KW1-Antennenspule)	Die maximale Ausgangsleistung einstellen.
(8)	KW1	"	8,0 MHz	8,0 MHz (Siehe Abb. 28.)	"	CT110 (KW1-Oszillatortrimmer) CT107 (KW1-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (8) und (9) wiederholen.
KW2-HF-ABGLEICH							
(9)	KW2	"	8,0 MHz	8,0 MHz (Siehe Abb. 29.)	"	L115 (KW2-Oszillators-pule) L109 (KW2-Antennenspule)	Die maximale Ausgangsleistung einstellen.
(10)	KW2	"	16 MHz	16 MHz (Siehe Abb. 28.)	"	CT109 (KW2-Oszillatortrimmer) CT106 (KW2-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (10) und (11) wiederholen.
KW3-HF-ABGLEICH							
(11)	KW3	"	16 MHz	16 MHz (Siehe Abb. 29.)	"	L114 (KW3-Oszillators-pule)	Die maximale Ausgangsleistung einstellen.
(12)	KW3	"	17 MHz	17 MHz (Siehe Abb. 30.)	"	L108 (KW3-Antennenspule)	"
(13)	KW3	"	30 MHz	30 MHz (Siehe Abb. 32.)	"	CT108 (KW3-Oszillatortrimmer)	"
(14)	KW3	"	28 MHz	28 MHz (Siehe Abb. 31)	"	CT105 (KW3-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (12) bis (15) wiederholen.

■ Verzögerte A.V.R. ABGLEICH

SIGNALGENERATOR		ABGLEICH	BEMERKUNGEN
ANSCHLÜSSE	FREQUENZ		
<div>• Über einen Keramik-kondensator (10 pF) an die AUSSEN-ANTENNEN Buchse ("EXT ANT") anschließen. Den negativen Ausgang erden.</div> <div>• Ausgangsleistungsmesser parallel zur Lautsprecher-schwingspule</div>	3,5 MHz	VR ₃₀₁ (Verzögerte A.V.R)	<div>(1) Den Signalgenerator auf 3,5 MHz einstellen (30% moduliert, Modulationsfrequenz 400 Hz).</div> <div>(2) Den Eingang des Signalgenerators auf ungefähr 20 dB (10µV) einstellen, den Radioempfänger abstimmen und danach den Eingang des Signal-generators auf 60 dB (1 mV) erhöhen.</div> <div>(3) Den Regelwiderstand so einstellen, daß die Lautsprecher-Ausgangsleistung auf der 1 V-Skala des Röhrenvoltmeters 0 db (770 mV) beträgt.</div> <div>(4) Danach den Signalgenerator auf 100 dB (100 mV) einstellen. Führen Sie nun entsprechend der Lautsprecher-Ausgangsleistung folgende Einstellungen aus: (a) fast keine Abschwächung (geringer als – 1,5 dB): keine Einstellung nötig (b) Abschwächung größer als – 1,5 dB: Den halbveränderlichen Widerstand VR301 langsam drehen, bis die Ausgangsleistung – 1,5 dB beträgt. Vorgangswise: Den halbveränderlichen Widerstand VR301 zuerst ganz nach links drehen. Dann langsam so weit nach rechts drehen, bis das erste Mal – 1,5 dB angezeigt wird.</div> <div>(5) Zuletzt den Eingang des Signalgenerators auf 60 dB und 100 dB einstellen. überprüfen Sie, ob der Unterschied in der Ausgangsleistung innerhalb – 1,5 dB (120 mV/8Ω) liegt.</div>

■ BFO-ABGLEICH

WEL- LEN- BAND	SIGNALGENERATOR oder WOBBELGENERATOR		STELLUNG DES ABSTIM- MREGLERS	MESSGERÄT (RÖHREN- VOLTMETER oder OSZILLOSKOP)	ABGLEICH	BEMERKUNGEN
	ANSCHLÜSSE	FREQUENZ				
BFO-ABGLEICH Hinweis: Den Bandbreitenschalter auf "Schmalband" ("Narrow") stellen.						
KW1	Aus einem Draht einige Schleifenwind- ungen bilden und das Signal in die Empfängerschleife abstrahlen.	3,5 MHz	Das Signal abstimmen.	Tonausgangs- leistung des Lautsprechers	L119 (BFO- Oszillatorspule)	<div>1. Nachdem das Signal abgestimmt worden ist, die Modulation ausschalten.</div> <div>2. Den Al- Überlagerer einschalten (BFO-Schalter auf "EIN").</div> <div>3. So abgleichen, daß keine Schwebung auftritt.</div>

■ EINSTELLUNG DER ABSTIMMUNG/ BATTERIESTÄRKE-ANZEIGE

1. REGLERSTELLUNGEN AM EMPFÄNGER

• Den Wellenbereichsschltter auf MW stellen ("MW").

• Den Lautstärkereger in die Minimalposition stellen ("MIN").

• Das Gerät einschalten (Netzschalter auf "EIN").
- Den BFO-Schalter auf "Aus" stellen ("OFF").

• Eine Stromquelle von 9 V Gleichstrom anlegen.

2. BEMERKUNGEN

• R129 so einstellen, daß die Anzeigenadel wie in der rechten Abbildung steht.

■ FM-ABGLEICH

WEL- LEN- BAND	SIGNALGENERATOR oder WOBBELGENERATOR		STELLUNG DES ABSTIM- MREGLERS	MESSGERÄT (RÖHREN- VOLT-METER oder OSZILLOSKOP)	ABGLEICH	BEMERKUNGEN
	ANSCHLÜSSE	FREQUENZ				
FM-ZF-ABGLEICH						
UKW	Über einen 0,001µF-Kondensator an den Meßpunkt▼ anschließen. Den negativen Ausgang erden.	10,7 MHz	Der Abstimpfpunkt, wo keine Interferenz auftritt.	Die Vertikal-amplitude des Oszilloskops an den Meßpunkt▼ anschließen. Den negativen Ausgang erden.	T103 (FM-ZF-Abgleich)	Die Maximalamplitude einstellen. (Siehe Abb. 21.)
FM-HF-ABGLEICH						
UKW	Über eine künstliche UKW-Antenne an den Meßpunkt▼ anschließen. (Siehe Abb. 22.)	87,5 MHz	Drehkondensator ganz geschlossen.	Ausgangsleistungsmesser parallel zur Lautsprecher-Schwingspule	L105 (FM-Oszillatorspule)	(* 2) Die maximale Ausgangsleistung einstellen.
UKW	"	90 MHz	90 MHz (Siehe Abb. 33.)	"	L103 (FM-Abstimmspule)	(* 2) Die maximale Ausgangsleistung einstellen.
UKW	"	106 MHz	106 MHz (Siehe Abb. 34.)	"	CT104 (FM-Oszillatortrimmer) CT103 (FM-Abstimmtrimmer)	(* 2) Die maximale Ausgangsleistung einstellen. Die Schritte (3) und (4) wiederholen.
(* 2) Es gibt drei verschiedene Ausgangsfrequenzkurven. Stimmen Sie die Mittelfrequenz ab.						

- Bemerkungen:

1. S1-1~S1-10 ...Wellenbereichsschalter auf "FM"

2. S2-1~S2-2 ...Digitalanzeigenschalter auf "OFF"

3. S3-1~S3-2 ...BFO-Schalter auf "OFF"

4. S4-1Bandbreitenschalter auf "NARROW"

5. S5.....EIN/AUS-Radioschalter auf "OFF"

6. S6.....Lichtschalter auf "OFF"

7. S7.....TA/Radio-Schalter auf "Radio"

8. S8.....Spannungswähler

9. S9.....Vorwähler auf "ON"

10. S10-1~S10-3 Vorwähler wellenbereichsschalter auf "MW"

11. Alle Gleichspannungen sind mit einem Elektronikvoltmeter vom negativen Batterieanschluß aus zu messen.
☐ ...Stellung "FM", ()...Stellung "AM",
< > ...Stellung "SW"
12. Die Markierung * bezeichnet einen Chip-Widerstand oder -kondensator.

13. Batteriestrom: ohne Signal36 mA
bei maximaler Ausgangsleistung ..600 mA

14. Für die Bauelemente, die mit Δ bezeichnet sind, sollen aus Gründen der Betriebssicherheit nur die Originalbauteile des Herstellers verwendet werden.

15. VR101Anzeigenregler
VR201HF-Verstärkungsregler
VR202KW-Eichregler
VR203BFO-Höhenregler
VR204Baßregler
VR205Höhenregler
VR206Lautstärkereger
VR301Schwundausgleich-Verzögerungsregler

RF-2900LBS FRANCAIS

SPECIFICATIONS

Gamme de fréquence:	FM	87,5~108 MHz	Puissance de sortie: 3 W DC Maximum
	GO	150~410 kHz (2000~731 m)	
	PO	525~1610 KHz (571~186 m)	
	OC1	3,2~8 MHz (93,8~37,5 m)	
	OC2	8~16 MHz (37,5~18,7 m)	
Fréquence intermédiaire:	OC3	16~30 MHz (18,7~10 m)	Alimentation: c.a. 110~125V/220~240V 50~60 Hz ou piles 9 V (six piles sèches de dimension D, National UM-1 ou équivalents)
	FM	10,7 MHz	
	AM (GO, PO et OC)	455 kHz	
	FM	2,5µV (S/B 26 dB)	
	FM	2µV (3 dB sensibilité lim. inf.)	
Sensibilité:	GO	70µV/m (S/B 6 dB)	Consommation: 11 W (c.a. seulement)
	GO	600µV/m (S/B 26 dB)	
	PO	30µV/m (S/B 6 dB)	
	PO	400µV/m (S/B 26 dB)	
	OC1	1,8µV (S/B 6 dB)	
	OC1	19µV (S/B 26 dB)	Haut-parleur: 10 cm (4") Haut-parleur dynamique PM
	OC2	0,8µV (S/B 6 dB)	
	OC2	9µV (S/B 26 dB)	
	OC3	1,2µV (S/B 6 dB)	
	OC3	13µV (S/B 26 dB)	

Les spécifications sont sujettes à des changements sans préavis.

ALIGNEMENTS

INSTRUCTIONS D'ALIGNEMENT

AVANT DE PROCEDER AUX ALIGNEMENTS LIRE ATTENTIVEMENT CE QUI SUI	
1. Régler le potentiomètre de volume au maximum.	8. Mettre le commutateur FM AFC/largeur de bande à la position OFF/NARROW pour le réglage AM-IF, BFO et FM et à la position ON/WIDE pour les autres réglages.
2. Mettre le commutateur marche/arrêt sur ON.	9. Mettre la commande de niveau au centre.
3. Mettre les commandes des graves et aigus à la position MAX.	10. Mettre la commande BFO à la position ON pour régler la BFO et à la position OFF pour les autres réglages.
4. Mettre le sélecteur de gamme d'onde sur LW (GO), MW (PO), SW1 (OC1), SW2 (OC2), SW3 (OC3) ou FM.	11. Mettre la commande SW CAL au centre.
5. Mettre la commande de l'affichage digital à la position "OFF",	12. Régler la tension sur 9 V c.c.
6. Régler le gain HF AM/SW au maximum.	13. Régler la sortie du générateur étalonné de façon à ne pas surcharger les circuits.
7. Commutateur de l'éclairage à la position OFF.	

ALIGNEMENT AM (GO, PO et OC)

BANDE	GENERATEUR ETALONNE ou GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ou OSCILLOSCOPE)	REGLAGE	OBSERVATIONS
	BRANCHEMENTS	FREQUENCE				
ALIGNEMENT AM sur IF						
(1) AM	Faire une boucle de plusieurs tours de fil et émettre le signal dans la boucle du récepteur.	455 kHz (modulation de 30% à 400 Hz)	Point de non- interférence	Voltmètre branché à la bobine oscillatrice	T101 (AM 1 ^{er} IFT) T102 (AM 2 ^e IFT) T104 (AM 3 ^e IFT)	Régler pour une sortie maxium

BANDE	GENERATEUR ETALONNE ou GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ou OSCILLOSCOPE)	REGLAGE	OBSERVATIONS	
	BRANCHEMENTS	FREQUENCE					
ALIGNEMENT HF sur GO							
(2)	GO	Faire une boucle de plusieurs tours de fil et émettre le signal dans la boucle du récepteur.	150 kHz (Voir fig. 23.)	Voltmètre branché à la bobine oscillatrice	L118 (bobine d'oscillateur GO) L102 (bobine d'antenne GO (* 1)	Régler pour une sortie maximum en glissant la bobine L102 le long du noyau en ferrite.	
(3)	GO	"	400 kHz (Voir fig. 24.)	"	CT112 (trimmer d'oscillateur GO) CT101 (trimmer d'antenne GO)	Régler pour une sortie maximum. Refaire les étapes (2) et (3).	
ALIGNEMENT HF sur PO							
(4)	PO	"	550 kHz (Voir fig. 25.)	Voltmètre branché à la bobine oscillatrice	L117 (bobine d'oscillateur AM) L102 (bobine d'antenne AM)(* 1)	Régler pour une sortie maximum en glissant la bobine L102 le long du noyan en ferrite.	
(5)	PO	"	1500 kHz (Voir fig. 26.)	"	CT111 (trimmer d'oscillateur AM) CT102 (trimmer d'antenne AM)	Régler pour une sortie maximum. Refaire les étapes (4) et (5).	
(* 1) Sceller la bobine à la cire après avoir achevé l'alignement.							
ALIGNEMENT OC sur 1ère IF et 2e OSC							
(6)	OC1	Brancher à la borne d'antenne EXT. par un condensateur en céramique (10 PF). Côté négatif à la terre.	2 MHz	Point de non- interférence	"	L106 (2e bobine d'oscillateur) L105 (1er IFT OC) L106 (1er IFT OC)	Régler pour une sortie maximum.
ALIGNEMENT HF sur OC1							
(7)	OC1	Brancher à la borne d'antenne EXT.	3,5 MHz (Voir fig. 27.)	Voltmètre branché à la bobine oscillatrice	L116 (bobine d'oscillateur OC1) L110 (bobine d'antenne OC1)	Régler pour une sortie maximum.	
(8)	OC1	"	8,0 MHz (Voir fig. 28.)	"	CT110 (trimmer d'oscillateur OC1) CT107 (trimmer d'antenne OC1)	Régler pour une sortie maximum. Refaire les étapes (8) et (9).	
ALIGNEMENT HF sur OC2							
(9)	OC2	"	8,0 MHz (Voir fig. 29.)	"	L115 (bobine d'oscillateur OC2) L109 (Bobine d'antenne OC2)	Régler pour une sortie maximum	
(10)	OC2	"	16 MHz (Voir fig. 28.)	"	CT109 (trimmer d'oscillateur OC2) CT106 (trimmer d'antenne OC2)	Régler pour une sortie maximum. Refaire les étapes (10) et (11).	
ALIGNEMENT HF sur OC3							
(11)	OC3	"	16 MHz (Voir fig. 29.)	"	L114 (bobine d'oscillateur OC3)	Régler pour une sortie maximum.	
(12)	OC3	"	17 MHz (Voir fig. 30.)	"	L108 (bobine d'antenne OC3)	"	
(13)	OC3	"	30 MHz (Voir fig. 32.)	"	CT108 (trimmer d'oscillateur OC3)	"	
(14)	OC3	"	28 MHz (Voir fig. 31.)	"	CT105 (trimmer d'antenne OC3)	Régler pour une sortie maximum. Refaire les étapes (12) et (15).	

■ ALIGNEMENT C.A.G.R.

GENERATEUR ETALONNE		REGLAGE	OBSERVATIONS
BRANCHEMENTS	FREQUENCE		
<div>• Brancher à la borne d'antenne EXT. par un condensateur en céramique (10 PF). Côté négatif à la terre.</div> <div>• Voltmètre branché à la bobine oscillatrice</div>	3.5 MHz	VR301 (C.A.G.R.)	<div>(1) Régler le générateur étalonné à 3,5 MHz (modulation de 30% à 400 Hz)</div> <div>(2) Régler l'entrée du générateur étalonné à environ 20 dB (10µV,) syntoniser la radio, puis augmenter jusqu'à 60 dB (1 mV).</div> <div>(3) Mettre la commande VR à la position ou la puissance de sortie soit de 0 dB (770 mV) dans le champ d' 1 V du voltmètre.</div> <div>(4) Régler le générateur étalonné à 100 dB (100 mV). Exécuter alors les réglages suivants selon la puissance de sortie du haut-parleur.<div>(a) Presque pas d'atténuation (dans – 1,5 dB) Pas de réglage nécessaire.</div><div>(b) Une atténuation excédant – 1,5 dB Régler VR301 semi-fixe graduellement jusqu'à obtenir une sortie de – 1,5 dB. Ne pas oublier que la commande VR301 semi-fixe doit d'abord être tournée complètement en sens inverse des aiguilles d'une montre et par après graduellement dans le sens des aiguilles d'une montre pour la régler à première la position où une lecture de – 1,5 dB est obtenue.</div></div> <div>(5) Régler l'entrée du générateur etalonné à 60 dB et 100 dB et s'assurer que la différence de sortie est dans – 1,5 dB (120 mV/8Ω).</div>

■ ALIGNEMENT FM

BANDE	GENERATEUR ETALONNE ou GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ou OSCILLOSCOPE)	REGLAGE	OBSERVATIONS
	BRANCHEMENTS	FREQUENCE				
ALIGNEMENT HF sur FM						
FM	Brancher au ▼ via 0,001µF. Côté négatif à la terre.	10,7 MHz	Point de non- interférence	Brancher la sonde vert. de l'oscilloscope au ▼. Côté négatif à la terre.	T103 (FM IFT)	Régler pour une amplitude maximum. (Voir fig. 21.)
ALIGNEMENT HF sur FM						
FM	Brancher au ▼ via une antenne fictive FM. (Voir fig. 22.)	87,5 MHz	Condensateur variable totalement fermé.	Voltmètre branché à la bobine oscillatrice	L105 (bobine d'oscillateur FM)	(* 2) Régler pour une sortie maximum
FM	”	90 MHz	90 MHz (Voir fig. 33.)	”	L103 (bobine TUNE FM)	(* 2) Régler pour une sortie maximum
FM	”	106 MHz	106 MHz (Voir fig. 34.)	”	CT104 (trimmer d'oscillateur FM) CT103 (trimmer TUNE FM)	(* 2) Régler pour une sortie maximum. Refaire les étapes (3) et(4).
(* 2) Il y aura trois réponses de sortie; la syntonisation adéquate est la fréquence du milieu.						

■ ALIGNEMENT BFO

BANDE	GENERATEUR ETALONNE ou GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ou OSCILLOSCOPE)	REGLAGE	OBSERVATIONS
	BRANCHEMENTS	FREQUENCE				
ALIGNEMENT BFO Remarque: Mettre le commutateur de largeur de bande à la position "NARROW".						
OC1	Faire une boucle de plusieurs tours de fil et émettre le signal dans la boucle du récepteur.	3,5 MHz	Syntoniser au signal	Sortie audio du haut-parleur	L119 (bobine d'oscillateur BFO)	1. Arrêter la modulation après la syntonisation au signal. 2. Mettre le com- mutateur BFO à la position ON. 3. Régler pour obtenir un battement nul.

■ REGLAGE DU METRE TUNE/BATT

1. Réglage du poste récepteur

• Mettre le dommutateur de gamme d'onde à la position MW (PO)

• Mettre le potentiomètre à MIN.

• Mettre la commande à
- Mettre le commutateur BFO à la position OFF.

• Régler la tension sur 9 V c.c.
2. REMARQUE
- Régler R129 de sorte que l'aiguille du mètre reste comme montré sur la figure à droite.

Remarques:

1. S1–1 à S1–10:...Commutateur de gamme d'onde (montré en position FM).

2. S2–1 à S2–2:... Commutateur de l'affichage digital (montré en position "OFF").

3. S3–1 à S3–2: ...Commutateur BFO (montré en position "OFF").

4. S4–1:Commutateur de largeur de bande (montré en position "NARROW").

5. S5:Commutateur marche/arrêt de la radio (montré à la position "OFF").

6. S6:Commutateur de l'éclairage (montré à la position "OFF").

7. S7:Commutateur phono/radio (montré à la position "RADIO").

8. S8:Sélecteur de tension

9. S9:Commutateur de présélection (montré à la position "ON").

10. S10–1 à S10–3: Présélection commutateur de gamme d'onde (montré en position MW).
11. La tension c.c. est mesurée au moyen d'un voltmètre électronique à partir de la borne négative de la pile.

□

...Position FM ()...Position AM

< >...Position OC

12. Symbol *.....résistance et condensateur (microplaquette)

13. Courant des piles. Pas de signal..... 36 mA Sortie maximum600 mA

14. Les éléments précédés du symbole Δ ne doivent être remplacés que par des pièces d'origine par mesure de sécurité.

15. VR101 ...Commande des mètres

VR201 ...Commande de réglage du gain HF

VR202 ...Commande de calibrage OC

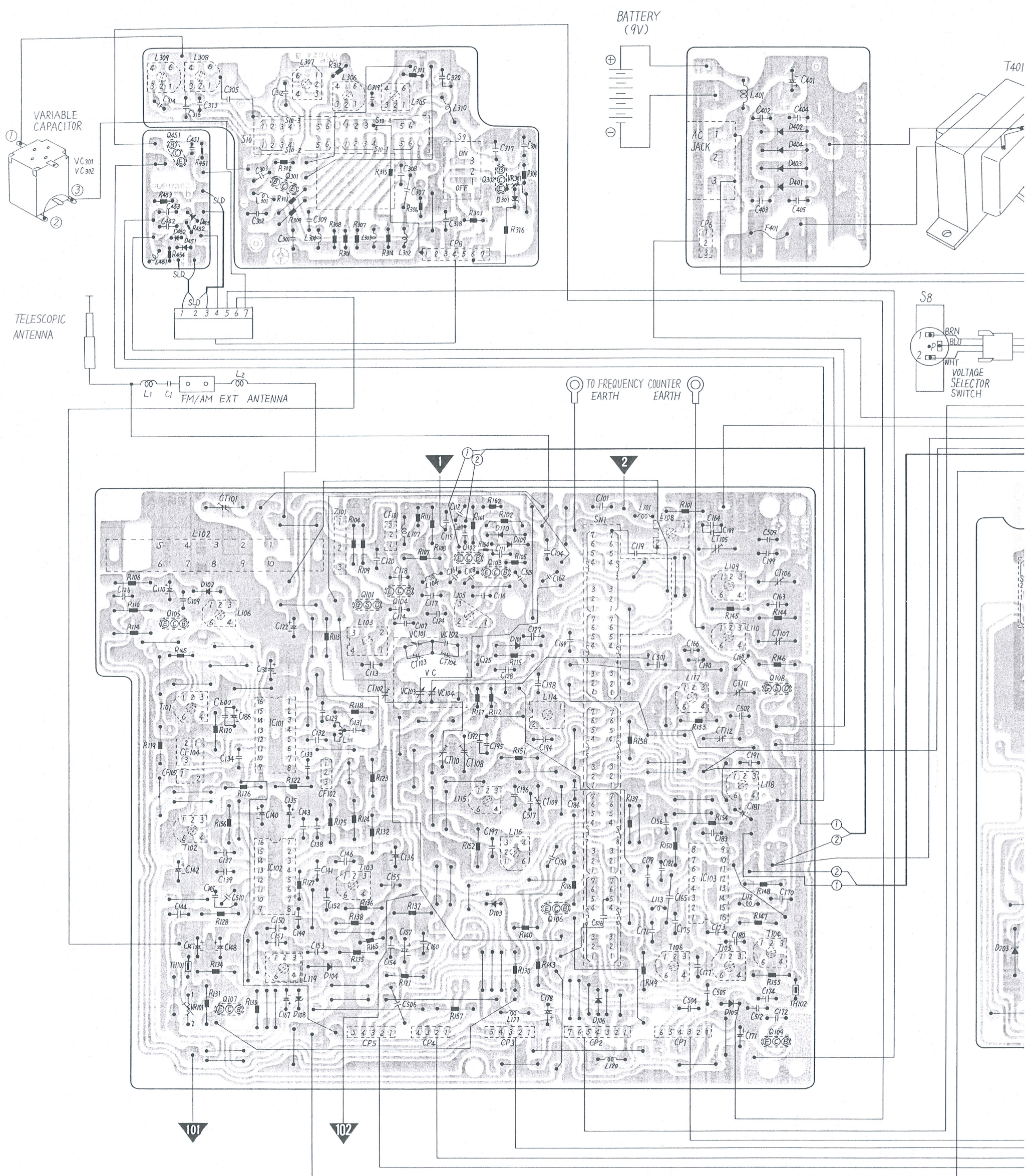
VR203 ...Commande du niveau BFO

VR204 ...Commande des graves

VR205 ...Commande des aigus

VR206 ...Potentiomètre de volume

VR301 ...Commande de réglage automatique différé de gain.



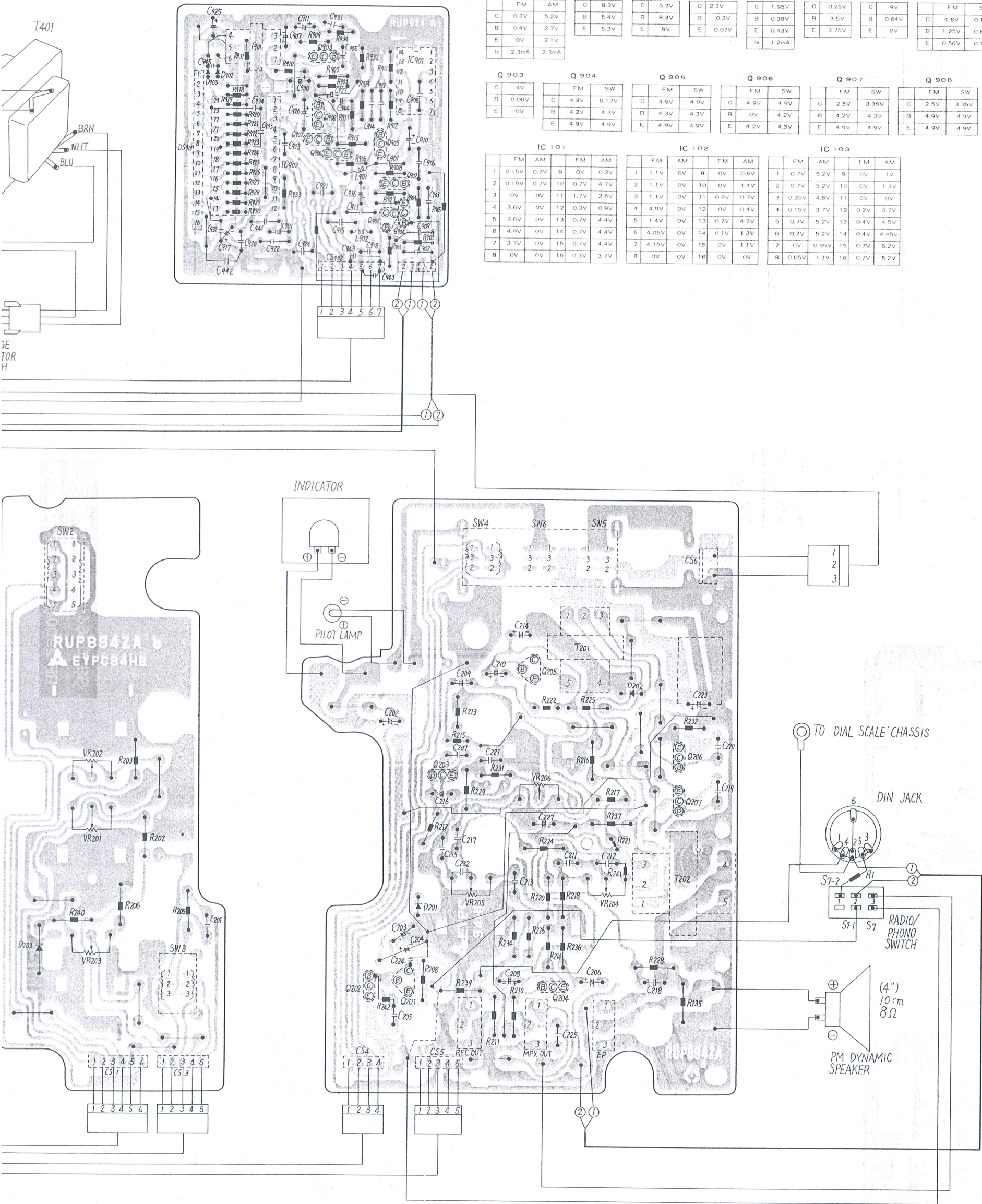
VOLTAGE

Q 101		Q 102		Q 103		Q 104		Q 105			Q 106			Q 107		Q 108		
	FM		FM		FM		FM		FM	AM	SW		FM	AM	SW		FM	AM
D	3.3V	C	4.8V	OV	C	OV	C	OV	C	0.66V	4.45V	4.45V	C	0.2V	0.12V	4.2V	D	OV
G	OV	B	1.47V	OV	B	1.2V	B	3.5V	B	0.18V	3.7V	4.15V	B	0.63V	0.63V	0.1V	G	OV
S	OV	E	0.85V	OV	E	2.1V	E	4.4V	E	0.66V	4.45V	4.45V	E	OV	OV	OV	S	OV
Is	3.5mA				Is	0.4mA	Is	0.8mA					Is	0.67mA			Is	2.3mA

Q 109		Q 201		Q 202		Q 203		Q 204		Q 205		Q 206, 207		Q 901		Q 902	
	FM	AM		C	8.3V		C	5.3V		C	2.3V		C	1.95V		C	0.25V
C	0.7V	5.2V	C	0.7V	5.2V	C	0.7V	5.2V	C	0.7V	5.2V	C	0.7V	5.2V	C	0.7V	5.2V
B	0.4V	2.7V	B	0.4V	2.7V	B	0.4V	2.7V	B	0.4V	2.7V	B	0.4V	2.7V	B	0.4V	2.7V
E	OV	2.1V	E	OV	2.1V	E	OV	2.1V	E	OV	2.1V	E	OV	2.1V	E	OV	2.1V
Is	2.3mA	2.3mA	Is	2.3mA	2.3mA	Is	2.3mA	2.3mA	Is	2.3mA	2.3mA	Is	2.3mA	2.3mA	Is	2.3mA	2.3mA

Q 903		Q 904		Q 905		Q 906		Q 907		Q 908	
	FM		FM		FM		FM		FM		FM
C	4V	C	4.8V	C	4.8V	C	4.8V	C	4.8V	C	4.8V
B	0.06V	B	4.2V	B	4.2V	B	4.2V	B	4.2V	B	4.2V
E	OV	E	4.9V	E	4.9V	E	4.9V	E	4.9V	E	4.9V

IC 101				IC 102				IC 103			
	FM	AM			FM	AM			FM	AM	
1	0.15V	0.7V	9	0V	0.3V	1	1.1V	0V	9	0V	0.6V
2	0.15V	0.7V	10	0.7V	4.7V	2	1.1V	0V	10	0V	1.4V
3	0V	0V	11	1.7V	2.6V	3	1.1V	0V	11	0.9V	0.7V
4	3.6V	0V	12	0.3V	0.9V	4	4.9V	0V	12	0V	0.4V
5	3.6V	0V	13	0.7V	4.4V	5	1.4V	0V	13	0.7V	4.7V
6	4.9V	0V	14	0.7V	4.4V	6	4.05V	0V	14	0.1V	1.3V
7	3.7V	0V	15	0.7V	4.4V	7	4.15V	0V	15	0V	1.1V
8	0V	0V	16	0.3V	3.7V	8	0V	0V	16	0V	0V



ALIGNMENT

RF-2900LBS RF-2900LBS

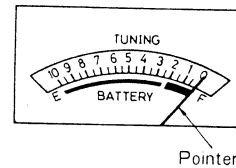
TUNE/BATT METER ADJUSTMENT

1. RADIO RECEIVER SETTING

- Set band switch to MW.
- Set volume control MIN.
- Set BFO switch to OFF.
- Set power source voltage to 9 volts DC.

2. REMARKS

- Adjust R₁₂₉ so that the pointer of meter stays as shown in figure right.



ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

- Set volume control to maximum.
- Set power switch to ON.
- Set bass and treble control to maximum.
- Set band switch to LW, MW, SW₁, SW₂, SW₃ or FM.
- Set digital display switch to OFF position.
- Set AM/SW RF gain control to high.
- Light switch to OFF position.
- Set FM AFC/Band width switch to OFF/narrow position for the AM-IF, BFO, and FM adjustment, and to ON/wide position for other adjustment.
- Set pitch control to center.
- Set BFO switch to ON position for BFO adjustment, and to OFF position for other adjustment.
- Set SW Cal control to center.
- Set power source voltage to 9V DC.
- Output of signal generator should be no higher than necessary to obtain an output reading.

AM (LW, MW, SW) ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
AM-IF ALIGNMENT							
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. at 400 Hz	Point of non-interference.	Output meter across voice coil.	T ₁₀₁ (AM 1st IFT) T ₁₀₂ (AM 2nd IFT) T ₁₀₄ (AM 3rd IFT)	Adjust for maximum output
LW-RF ALIGNMENT							
(2)	LW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	150 kHz	150 kHz (Refer to fig. 23)	Output meter across voice coil	L ₁₁₈ (LW OSC Coil) (* 1)L ₁₀₂ (LW ANT Coil)	Adjust for maximum output. Adjust L ₁₀₂ by moving coil bobbin along ferrite core.
(3)	LW	"	400 kHz	400 kHz (Refer to fig. 24)	"	CT ₁₁₂ (LW OSC Trimmer) CT ₁₀₁ (LW ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
MW-RF ALIGNMENT							
(4)	MW	"	550 kHz	550 kHz (Refer to fig. 25)	Output meter across voice coil	L ₁₁₇ (MW OSC Coil) (* 1)L ₁₀₂ (MW ANT Coil)	Adjust for maximum output. Adjust L ₁₀₂ by moving coil bobbin along ferrite core.
(5)	MW	"	1500 kHz	1500 kHz (Refer to fig. 26)	"	CT ₁₁₁ (MW OSC Trimmer) CT ₁₀₂ (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
(*1) Cement antenna bobbin with wax after completing alignment.							
SW-1st IF and 2nd OSC ALIGNMENT							
(6)	SW ₁	Connect to EXT ant. terminal through ceramic capacitor (10 PF). Negative side to earth	2 MHz	Point of non-interference.	"	L ₁₀₈ (2nd OSC Coil) T ₁₀₅ (SW 1st IFT) T ₁₀₆ (SW 1st IFT)	Adjust for maximum output.
SW ₁ -RF ALIGNMENT							
(7)	SW ₁	Connect to EXT ANT terminal.	3.5 MHz	3.5 MHz (Refer to fig. 27)	Output meter across voice coil.	L ₁₁₆ (SW ₁ OSC Coil) L ₁₁₀ (SW ₁ ANT Coil)	Adjust for maximum output.
(8)	SW ₁	"	8.0 MHz	8.0 MHz (Refer to fig. 28)	"	CT ₁₁₀ (SW ₁ OSC Trimmer) CT ₁₀₇ (SW ₁ ANT Trimmer)	Adjust for maximum output. Repeat steps (7) and (8).
SW ₂ -RF ALIGNMENT							
(9)	SW ₂	"	8.0 MHz	8.0 MHz (Refer to fig. 29)	"	L ₁₁₅ (SW ₂ OSC coil) L ₁₀₉ (SW ₂ ANT Coil)	Adjust for maximum output.
(10)	SW ₂	"	16 MHz	16 MHz (Refer to fig. 28)	"	CT ₁₀₉ (SW ₂ OSC Trimmer) CT ₁₀₆ (SW ₂ ANT Trimmer)	Adjust for maximum output. Repeat steps (9) and (10).

SW ₃ -RF ALIGNMENT						
(11)	SW ₃	"	16 MHz	16 MHz (Refer to fig. 29)	"	L ₁₁₄ (SW ₃ OSC Coil) Adjust for maximum output.
(12)	SW ₃	"	17 MHz	17 MHz (Refer to fig. 30)	"	L ₁₀₈ (SW ₃ ANT Coil) "
(13)	SW ₃	"	30 MHz	30 MHz (Refer to fig. 32)	"	CT ₁₀₈ (SW ₃ OSC Trimmer) "
(14)	SW ₃	"	28 MHz	28 MHz (Refer to fig. 31)	"	CT ₁₀₅ (SW ₃ ANT Trimmer) Adjust for maximum output. Repeat steps (11)~(14).

D. AGC ALIGNMENT

SIGNAL GENERATOR		ADJUSTMENT	REMARKS
CONNECTION	FREQUENCY		
<ul style="list-style-type: none"> • Connect to EXT ANT terminal through Ceramic Capacitor. (10PF). Negative side to earth. • Output meter (VTVM) across voice coil. 	3.5 MHz	VR ₃₀₁ (D. AGC)	<ol style="list-style-type: none"> Set signal generator to 3.5 MHz (400 Hz, 30% mod.) Set signal generator input to approximately 20 dB (10μV), tune the radio, and then increase signal generator input to 60 dB (1 mV). Adjust the volume control so that the speaker output at this time agrees with 0 dB (770 mV) of the 1V range of the VTVM. Then set the signal generator to 100 dB (100 mV). Make the following adjustments according to speaker output at this time. <ul style="list-style-type: none"> (a) Almost no attenuation (within -1.5 dB) No adjustment necessary (b) Attenuation exceeding -1.5 dB Rotate semi-fixed VR₃₀₁ gradually until output becomes -1.5 dB. Note that semi-fixed VR₃₀₁ should first be rotated completely counterclockwise, and then gradually rotated clockwise to adjust to the first position where a reading of -1.5 dB is obtained. Finally, switch the signal generator input to 60 dB and 100 dB and confirm that the output difference is within -1.5 dB (120 mV/8Ω).

FM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
FM-IF ALIGNMENT						
(1)	FM	Connect to test point ▼ through 0.001μF. Negative side to earth.	10.7 MHz	Point of non-interference.	Connect vert. amp. of scope to test point ▼. Negative side to earth.	T ₁₀₃ (FM IFT) Adjust for maximum amplitude. (Refer to fig. 21)
FM-RF ALIGNMENT						
(2)	FM	Connect to test point ▼ through FM dummy antenna. (Refer to fig. 22).	87.5 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L ₁₀₅ (FM OSC Coil) (* 2) Adjust for maximum output.
(3)	FM	“	90 MHz (Refer to fig. 33)	“	L ₁₀₃ (FM TUNE Coil)	(* 2) Adjust for maximum output.
(4)	FM	“	106 MHz (Refer to fig. 34)	“	CT ₁₀₄ (FM OSC Trimmer) CT ₁₀₃ (FM TUNE Trimmer)	(* 2) Adjust for maximum output. Repeat steps. (3)~(4).
(* 2) Three output responses will be present; proper tuning is the center frequency.						

BFO ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
BFO ALIGNMENT Note: Set band width switch to "Narrow".						
SW ₁	Fashion loop of several turns of wire and radiate signal into loop of receiver.	3.5 MHz	Tune to signal.	Audio output from speaker.	L ₁₁₉ (BFO OSC Coil)	<ol style="list-style-type: none">1. Cut off modulation after tune to signal.2. Set BFO switch to ON.3. Adjust for zero beat.

■ ALIGNMENT POINTS

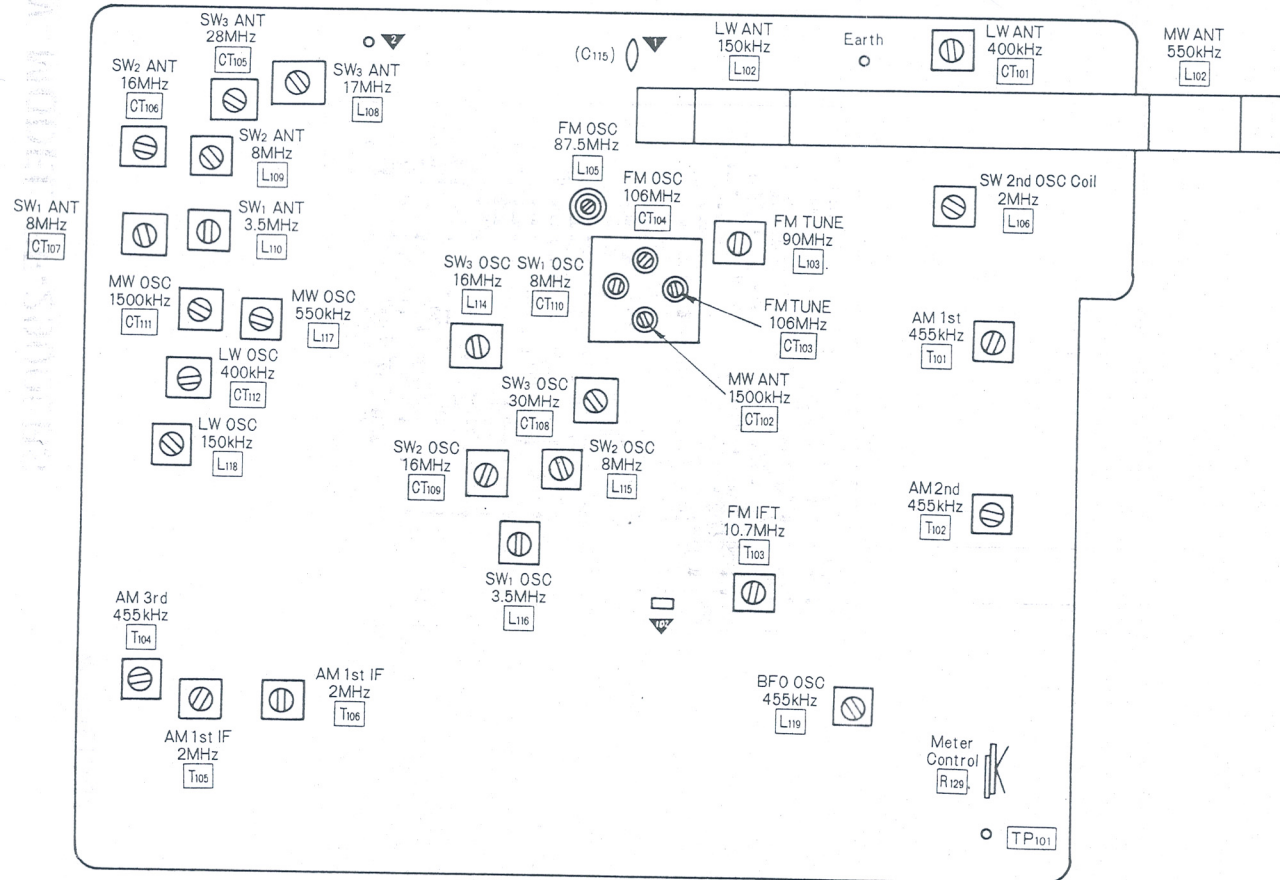


Fig. 19

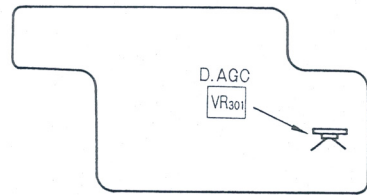


Fig. 20

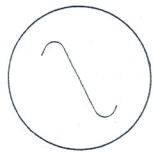


Fig. 21

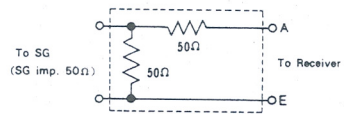
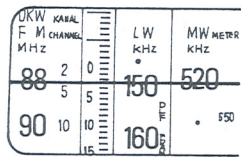
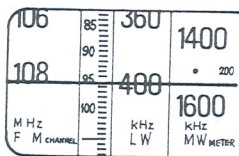


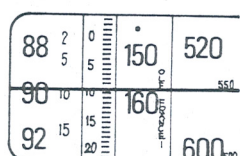
Fig. 22



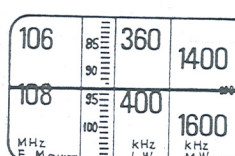
LW (150 kHz)
Fig. 23.



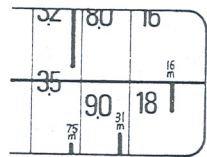
LW (400 kHz)
Fig. 24.



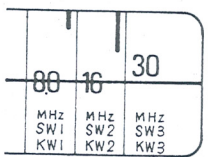
MW (550 kHz)
Fig. 25.



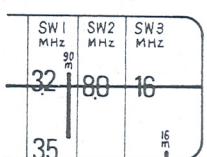
MW (1500 kHz)
Fig. 26.



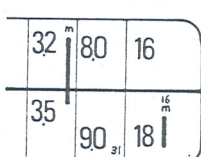
SW₁ 3.5 MHz
Fig. 27.



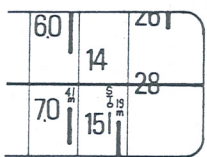
SW₁ 8 MHz, SW₂ 16 MHz
Fig. 28.



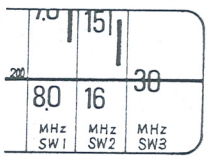
SW₂ 8 MHz, SW₃ 16 MHz
Fig. 29.



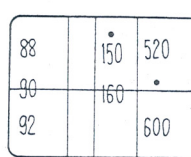
SW₃ 17 MHz
Fig. 30.



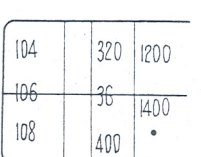
SW₃ 28 MHz
Fig. 31.



SW₃ 30 MHz
Fig. 32.

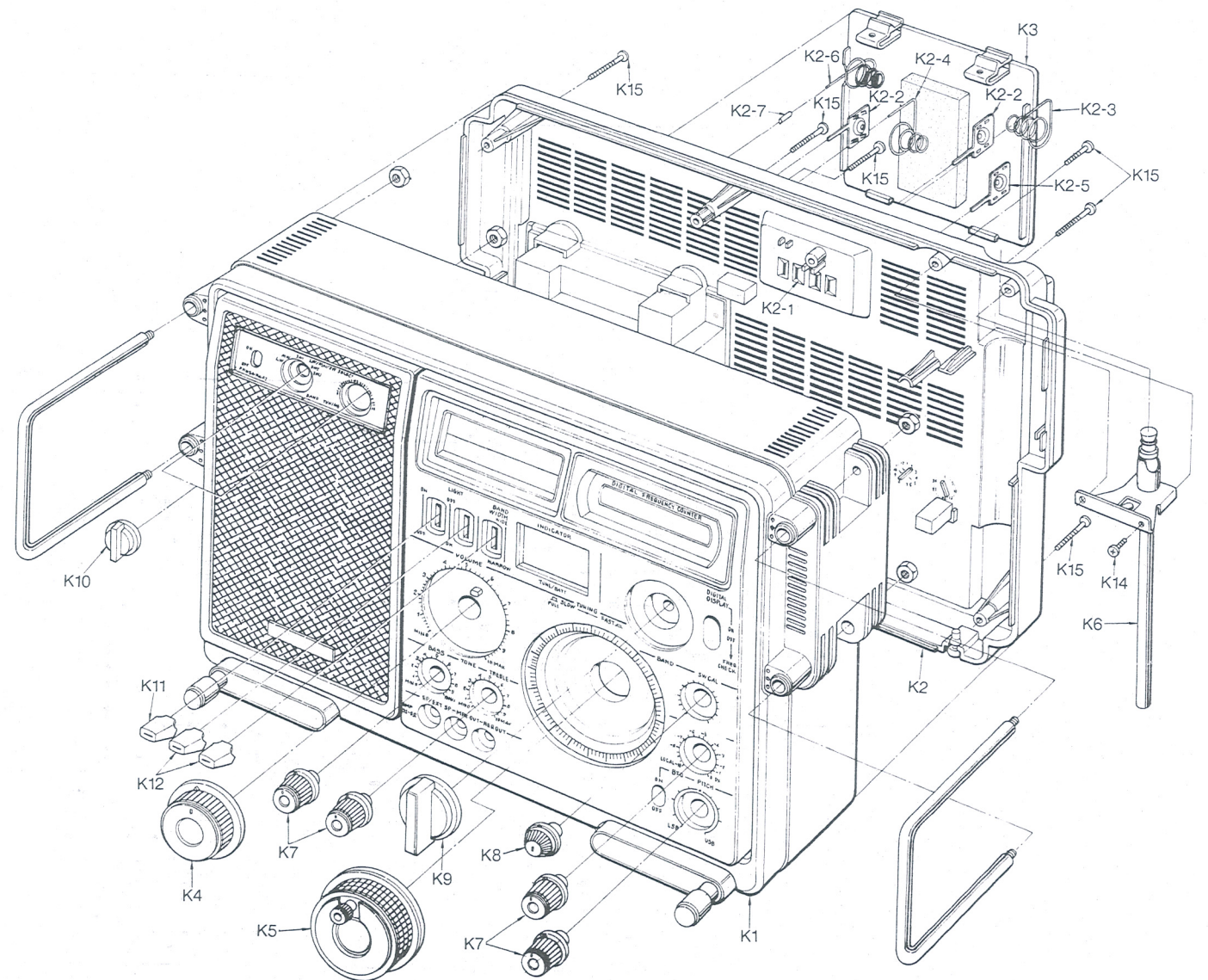


FM 90 MHz
Fig. 33.



FM 106 MHz
Fig. 34.

CABINET PARTS



CHASSIS PARTS

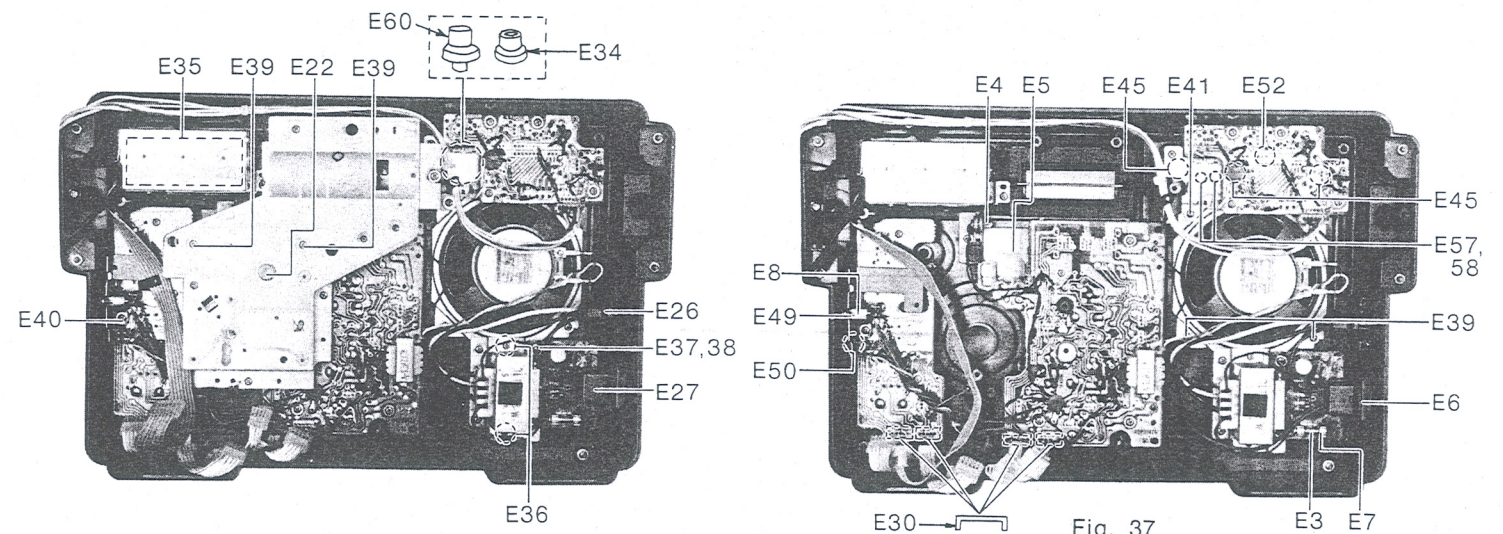


Fig. 36

Fig. 37

REPLACEMENT PARTS LIST.....Model RF-2900LBS (RD7906-1699C)

NOTES: 1. Δ indicates that only parts specified by the manufacturer be used for safety.
2. The S mark is service standard parts and may differ from production parts.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
INTEGRATED CIRCUIT, TRANSISTORS, DIODES AND THERMISTOR				
IC101	AN7210	IC	1	
IC102	AN7211	IC	1	
IC103	AN7212	IC	1	
IC901	RVITD6101P-1	IC	1	
IC902	RVIM54824P	IC	1	
Q101	2SK49	Transistor (Ge)	1	
Q102,301	2SC1359	Transistor (Si)	2	
Q103,104,105,907,908	2SA838	Transistor (Ge)	5	
Q106,906	2SC828	Transistor (Si)	2	
Q107,109,203,204,302,451	2SC945	Transistor (Si)	6	
Q108	2SK104	Transistor (Ge)	1	
Q201	2SD367	Transistor (Si)	1	
Q202	2SB544	Transistor (Ge)	1	
Q205	2SB173	Transistor (Ge)	1	
Q206,207	2SC1568	Transistor (Si)	2	
Q901,902	2SC1047	Transistor (Si)	2	
Q903	2SC2001	Transistor (Si)	1	
Q904,905	2SA564	Transistor (Ge)	2	
D101,102,104	RVDS113	Diode (Si)	3	S
D103,105,106,109,110,451,452,453,902,903	MA161	Diode (Si)	10	S
D108	RVDRD9R1EB	Diode (Si)	1	
D201	RVDEQA0105T	Diode (Si)	1	
D202	RVDKB162C	Diode (Si)	1	
D203	RVDMZ203B	Diode (Si)	1	
D301	RVDRD5R1EB	Diode (Si)	1	
D401,402,403,404	SM112	Diode (Si)	4	S Δ
TH101	RRT800	Thermistor	1	
TH102	RRT302	Thermistor	1	
COILS AND TRANSFORMERS				
L102	RLF6F20	Antenna coil, LW, MW	1	
L103	RLD4M9	Detector Coil, FM	1	
L105	RLO4N105	Oscillator Coil, FM	1	
L106	RLO9M10	IFT, AM 1st	1	
L108	RLD7M3	Antenna Coil, SW3	1	
L109	RLA3M30	Antenna Coil, SW2	1	
L110	RLA3M40	Antenna Coil, SW1	1	
L114	RLD4M5	Oscillator Coil, SW3	1	
L115	RLO3M49	Oscillator Coil, SW2	1	

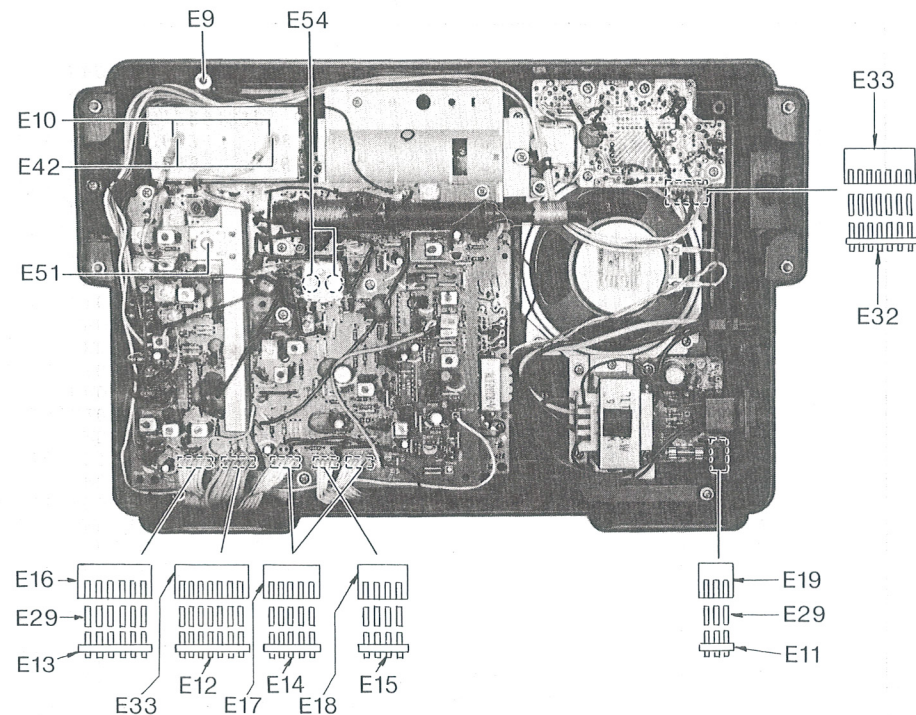


Fig. 38

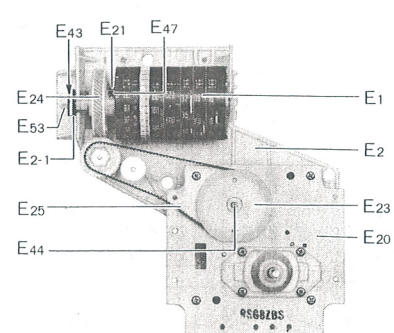


Fig. 39

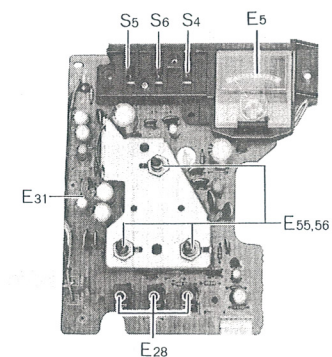


Fig. 40

13

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
L116	RLO3M48	Oscillator Coil, SW1	1	
L117	RLO2M14	Oscillator Coil, MW	1	
L118	RLO1M8	Oscillator Coil, LW	1	
L119	RLO9M9	BFO	1	
L305	RLA1B2	Coil, Preselect	1	
L306	RLA2M3	" , "	1	
L307	RLA3M58	" , "	1	
L308	RLA3M59	" , "	1	
L309	RLA3M60	" , "	1	
T101	RLI2M212	IFT, AM 2nd	1	
T102	RLI2M205	IFT, AM 2nd	1	
T103	RLI4M101	IFT, FM	1	
T104	RLI2M204	IFT, AM 2nd	1	
T105	RLI9M3	IFT, AM 1st	1	
T106	RLI9M4	IFT, AM 1st	1	
T201	RLT3F30	Input Transformer	1	
T202	RLT2H28	Output Transformer	1	
T401	RLT5K118	Power Transformer	1	⚠
T901	RLT9E2	Power Transformer, Display	1	
VARIABLE RESISTORS				
VR101	EVLT4AA00B54	Preset, 50k Ω	1	S
VR201,205,206	EVH0XAF15A54	Variable Resistor, 50k Ω	3	
VR202,203,204	EVH0XAF15B54	Variable Resistor, 50k Ω	3	
VR301	EVLT4AA00B24	Preset, 20k Ω	1	S
VARIABLE CAPACITOR				
VC101,102,103,104	PVC22K20T5L	Tuning Capacitor w/Trimmer	1	
CT101	RCV1PX15AGS	Capacitor (CT102,103,104,110)	1	
CT105,106,108,109	RCV1PX30AGS	Trimmer Capacitor	4	
CT107,111	RCV1PX10AGS	Trimmer Capacitor	2	
CT112	RCV1PX20AGS	Trimmer Capacitor	1	
VC301,302	RCV2-027PTL	Tuning Capacitor	1	
CERAMIC FILTER				
CF101,102	RVF107MFR	Ceramic Filter	2	
CF104	RVFLFB6A	"	1	
CF105	RVFBFB455C2	"	1	
COMPONENT COMBINATION				
Z101	RXABPMF1	Component Combination	1	
SPEAKER				
	EAS10P57SC	Speaker, 10cm (4"), 8 Ω	1	
SWITCHES				
S1	RSR6J01Z	Switch, Band	1	
S2	RSS69Z	" , Display	1	
S3	RSS2B03Z	" , BFO	1	
S4,5,6	RSTX003Y	" , Radio, Light, WIDTH	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
S7	RSS2B02Z	Switch, Radio/Phono	1	
S8	RSR2A01Z	" , Voltage Selector	1	⚠
S9	RSS2A07Z	" , Preselect	1	
S10	RSR5D03Z	" , Preselect Band	1	
RESISTORS (Value is in OHMS)				
R232	ERX1ANJ1R0	1 1W Metal	1	S
R313	ERD25TJ2R2	2.2 1/4W Carbon	1	S
R242	ERD25TJ4R7	4.7 " "	1	S
R910	ERD25TJ100	10 " "	1	S
R146,164,314	ERD25TJ220	22 " "	3	S
R158	ERD25TJ330	33 " "	1	S
R113,119,121,123,132,213,235	ERD25TJ470	47 " "	7	S
R309	ERD25TJ560	56 " "	1	S
R125,222	ERD25TJ680	68 " "	2	S
R145,239,945,308	ERD25TJ101	100 " "	3	S
R157,161	ERD25TJ151	150 " "	2	S
R147,150	ERD25TJ221	220 " "	2	S
R153	ERD25TJ331	330 " "	1	S
R109,214,225	ERD25TJ471	470 " "	3	S
R102,124,154,208	ERD25TJ681	680 " "	4	S
R104,107,111,118,140,152,162,240,306,307,316,120	ERD25TJ102	1 K 1/4W Carbon	12	S
R131,148,215	ERD25TJ152	1.5 K " "	3	S
R151,909	ERD25TJ122	1.2 K " "	2	S
R128,205,211,452,453,932	ERD25TJ222	2.2 K " "	6	S
R217	ERD25TJ272	2.7 K " "	1	S
R303,315	ERD25TJ561	560 " "	2	S
R149,301,905	ERD25TJ332	3.3 K " "	3	S
R106,110,127,224	ERD25TJ472	4.7 K " "	4	S
R206,218,220,934	ERD25TJ682	6.8 K " "	4	S
R114,126,130,134,139,231,304,451,935	ERD25TJ103	10 K 1/4W " "	9	S
R241	ERD25TJ123	12 K " "	1	S
R143,155,216	ERD25TJ153	15 K " "	3	S
R144	ERD25TJ223	22 K " "	1	S
R202,221,229	ERD25TJ333	33 K " "	3	S
R122,165	ERD25TJ473	47 K " "	2	S
R105	ERD25TJ563	56 K " "	1	S
R138,236	ERD25TJ683	68 K " "	2	S
R101,112,136,165,226,228	ERD25TJ104	100 K " "	6	S
R203	ERD25TJ124	120 K " "	1	S

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R135	ERD25TJ154	150 K 1/4W Carbon	1	S
R115,117	137,210,237,302,311			
	ERD25TJ224	220 K " "	7	S
R133	ERD25TJ273	27 K " "	1	S
R116,212	234			
	ERD25TJ334	330 K " "	3	S
R1,108,156				
	ERD25TJ474	470 K " "	3	S
R454	ERD25TJ392	3.9 K " "	1	S
CAPACITORS (Value is in MICRO FARADS except P.P=PICO FARADS)				
C104	ECCD1H010C	1 P 50V Ceramic	1	
C117	ECCD1H020C	2 P " "	1	
C125	ECCD1H030C	3 P " "	1	
C114,118,177				
	ECCD1H040C	4 P " "	3	
C165	ECCD1H050C	5 P " "	1	
C139,502	ECCD1H180KC	18 P " "	2	
C124	ECCD1H070DW	7 P " "	1	
C1,113,166,179				
	ECCD1H100KC	10 P " "	4	
C197	ECCD1H100KX	10 P " "	1	
C101	ECCD1H120KC	12 P " "	1	
C163	ECCD1H150KC	15 P " "	1	
C111,199,502				
	ECCD1H180KC	18 P " "	3	
C196,162	ECCD1H220KC	22 P " "	2	
C146,170,302,303,319				
	ECCD1H270KC	27 P " "	5	
C318,517	ECCD1H330KC	33 P " "	2	
C195	ECCD1H330KU	33 P " "	1	
C108	ECCD1H390KC	39 P " "	1	
C164,909	ECCD1H050CC	5 P " "	2	
C172,509	ECCD1H101K	100 P " "	2	
C174	ECCD1H181K	180 P " "	1	
C515	ECKD1H102ZF	0.001 " "	1	
C107,112,115,116,152,161,207,516				
	ECKD1H102MD	0.001 " "	8	
C189	ECCD1H560K	56 P " "	1	
C213	ECKD1H332MD	0.0033 " "	1	
C308	ECKD1H682MD	0.0068 " "	1	
C120,137,154,168,402,403,404,405,504				
	ECKD1H103ZF	0.01 50V " "	9	
C109,126,128,133,134,158,173,175,180,182,199,201,205,225,309,512,520				
	ECKD1H103MD	0.01 50V " "	17	
C131,139,149,150,155				
	ECKD1H223ZF	0.022 " "	5	
C156	ECFVD153MD	0.015 25V Semi-conductor	1	
C212,218,232,301,306,316,451,452,453				
	ECFVD103MD	0.01 25V " "	9	
C144,160,194,220,600				
	ECFVD333MD	0.033 " "	5	
C176,215	ECFVD473MD	0.047 " "	2	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C138,143,211,224				
	ECFVD683MD	0.068 25V Semi-conductor	4	
C305,307	ECFVD104MD	0.1 " "	2	
C153	ECMS05101JH	100 P 50V Mica	1	
C151,191	ECMS05121JH	120 P " "	2	
C192	ECMS05680JH	68 P " "	1	
C313	ECQS05301JZ	300 P " Styrol	1	
C190	ECQS05361JZ	360 P " "	1	
C312,501	ECQS05681JZ	680 P " "	2	
C129	ECQS05102KZ	1000 P " "	1	
C169	ECQS05182KZ	1800 P " "	1	
C198	ECQS05432JZ	4300 P " "	1	
C119	ECQS05472KZ	4700 P " "	1	
C314	ECQS05271JZ	270 P " "	1	
C317	ECQS05272KZ	2700 P " "	1	
C145,510	ECQG05683MZ	0.068 " Polyester	2	
C186,210	ECEA1AS101	100 10V Electrolytic	2	S
C216	ECEA50Z3R3	3.3 50V " "	1	S
C110,209	ECEA50Z2R2	2.2 " " "	2	S
C122	ECEA1AS470	47 10V " "	1	S
C206,208	ECEA50Z1	1 50V " "	2	S
C142,148,202,203,204,214				
	ECEA1AS221	220 10V " "	6	S
C136	ECEA0JS471	470 6.3V " "	1	S
C130,135,140,178,171				
	ECEA1CS330	33 16V " "	5	S
C147,167,181,227				
	ECEA1HS100	10 50V " "	4	S
C157	ECEA50ZR1	0.1 " " "	1	S
C223,401	ECEA1CS102	1000 16V " "	2	S
C932,933,934				
	ECKD1H471KB	470 P 50V Ceramic	3	
C942	ECCD1H331K	330 P " "	1	
CABINET PARTS				
K1	RYMF2900LBS8	Front Cabinet Ass'y	1	
K2	RYFF2900LBS0	Rear Cabinet Ass'y	1	
K2-1	RJF1065Z	Terminal, EXT ANT	2	
K2-2	RJC205B	Terminal, Battery + Side	2	
K2-3	RJC508Z	Spring, Battery - Side	1	
K2-4	RJC509Z	Spring, Battery - Side	1	
K2-5	RJC111A	Terminal, Battery + Side	1	
K2-6	RJC505Z	Spring, Battery - Side	1	
K2-7	RJT398A	Pipe, Battery Spring	1	
K3	RYNF2800M	Battery Cover Ass'y	1	
K4	RYT1F2800N	Knob Ass'y, Volume	1	
K5	RYT2F2800N	Knob Ass'y, Tuning	1	
K6	XEART160GEY	Telescopic Antenna, 7 Steps 963 mm	1	
K7	RBN381Z	Knob, Bass, Treble, etc.	4	
K8	RBN420Z	Knob, SW Cal	1	
K9	RBS112Z	Knob, Band	1	
K10	RBS148Z	Knob, Pre-select	2	
K11	RBE13Y	Knob, Radio	1	
K12	RBE13X	Knob, Light, Band Width	2	

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Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
K14	XTN3+8B	Screw	1	S
	RHG886Z	Rubber, Speaker	1	
K15	XTN3+25B	Screw	6	S
ELECTRICAL PARTS				
E1	RYDF2900LBSX	Dial Scale Ass'y	1	
E2	RXEF2800M	Dial Chassis Ass'y	1	
E2-1	RUS315Z	Spring, Dial Scale	1	
E3	XBA2C08TRO	Fuse (F401), 800 mA	1	⚠
E4	XAMR43S100A	Pilot Lamp	1	
E5	RSM2616Z	Meter, Tuning/Battery	1	
E6	RJJ115Z	Jack, AC	1	⚠
E7	RJF7A	Holder, Fuse	1	⚠
E8	RJS31-1	Socket, Din	1	
E9	RJT514Z	Terminal, Antenna	2	
E10	RJT202B	Terminal, Earth	3	
E11	RJP137Z	Plug (3P)	1	
E12	RJP119Z	Plug (7P)	1	
E13	RJP142Z	Plug (6P)	1	
E14	RJP116Z	Plug (5P)	2	
E15	RJP107Z	Plug (4P)	1	
E16	RJS112Y	Socket (6P)	1	
E17	RJS217Y	Socket (5P)	2	
E18	RJS216Y	Socket (4P)	1	
E19	RJS253Y	Socket (3P)	1	
E20	RSG8ZS	Dial Mechanism Ass'y	1	
E21	RUS323Z	Spring, Dial Gear	1	
E22	RUS295Z	Spring, Dial Drum	1	
E23	RDG5656Z	Gear, Dial	1	
E24	RDG5658Z	Gear, Dial Scale	1	
E25	RDV2Z	Belt, Dial	1	
E26	RUV426Z	Cover, Voltage Switch	1	⚠
E27	RUV482Z	Cover, AC Jack	1	⚠
E28	RJJ48A	Jack, EP/EXT SP & etc.	3	
E29	RJT462Z	Terminal, Socket	29	
E30	RUL532Z	Bracket	4	
E31	RMV90Z	Heat Sink, Q206, 207	2	
E32	RJP173Z	Plug (7P)	1	
E33	RJS219Y	Socket (7P)	2	
E34	RHR448Z	Spacer	1	
E35	RAD5-BT-11	Display (DS901)	1	
E36	RHE7017AS	Nut	2	
E37	XSN3+8S	Screw	2	S
E38	XWG3	Washer	39	S
E39	XTN3+10B	Screw	33	S
E40	XTN3+12B	Screw	1	S
E41	XTN3+16B	Screw	1	S
E42	XTN3+6B	Screw	9	S
E43	XTN23+6B	Screw	1	S
E44	XYNR26+C6	Screw	2	
E45	XTN26+10B	Screw	3	S
E47	XXAS3K5S	Screw	2	
E49	XSB3+6BNS	Screw	2	S
E50	XSN2+4	Screw	1	S

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
E51	XUC2FT	Circlip	1	S
E52	XUC5FT	"	1	S
E53	XUC6FT	"	1	S
E54	XYNR26+C5	Screw	2	
E55	XNS8	Nut	6	S
E56	XWS8AW	Washer	6	S
E57	XSN26+4	Screw	2	S
E58	XWA26B	Washer	2	S
E60	RBE14Z	Joint, Variable Capacitor	1	
ACCESSORIES				
	XEH1A1-P	Magnetic Earphone	1	S
	RJA20Z	AC Cord	1	S ⚠
	RKE234Z	Hood	1	
	RQC9013Z	Belt	1	
PACKING MATERIALS				
	RPK777Z	Packing Case	1	
	RPN9227Z	Pad Complete	1	
	RPP214Z	Polyethylene	1	
	XZB10X25A04	"	1	
PRINTED MATERIALS				
	RQX6448Z	Instruction Book	1	
	RQX9199Z	SW Manual	1	

Service Manual

Radio
RF-2900LBS
(Gray Face)

FM-AM 6-Band Portable Radio

Supplement-1

- * This service manual includes only the changes of the RF-2900LBS service manual (ORDER NO. RD7906-1699C).
- * This manual should be filed with the service manual for model RF-2900LBS (ORDER NO. RD7906-1699C).
- * When servicing model RF-2900LBS supplement-1, this service manual and the RF-2900LBS service manual should be used together.



CHANGES

■ REPLACEMENT PARTS LIST

Ref. No.	Change of Part No.		Description	Per Set	Remarks	Price
	RF-2900LBS	RF-2900LBS supplement-1				
K ₁	RYMF2900LBS8	RYMF2900LB91	Front Cabinet Ass'y (Gray)	1	○	
K ₂	RYFF2900LBS0	RYFF2900LB91	Rear Cabinet Ass'y (Gray)	1	○	
K ₃	RYNF2800M	RYNF2900LB91	Battery Cover Ass'y (Gray)	1	○	
	RKE234Z	RKE234Y	Hood (Gray)	1	○	
	RQX6448Z	RQX6521Z	Instruction Book	1	○	